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SCIENCE

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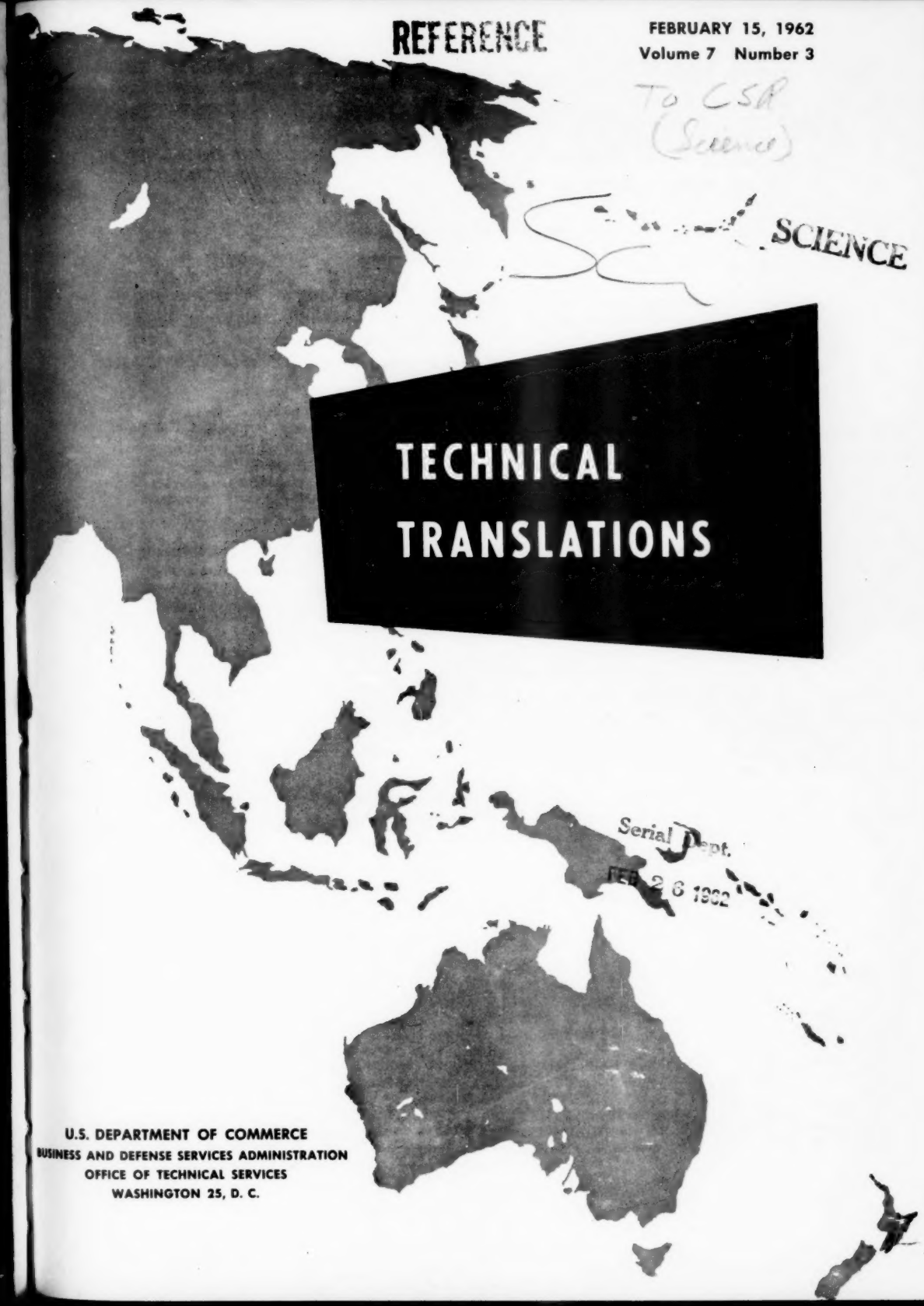

Serial Dept.
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U.S. DEPARTMENT OF COMMERCE
BUSINESS AND DEFENSE SERVICES ADMINISTRATION
OFFICE OF TECHNICAL SERVICES
WASHINGTON 25, D. C.

TECHNICAL TRANSLATIONS

U.S. DEPARTMENT OF COMMERCE
Luther H. Hodges, Secretary

BUSINESS AND DEFENSE SERVICES ADMINISTRATION

Office of Technical Services
John C. Green, Director

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BUSINESS AND DEFENSE SERVICES ADMINISTRATION
OFFICE OF TECHNICAL SERVICES
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TECHNICAL TRANSLATIONS

Volume 7, Number 3 Pages 113 - 176 February 15, 1962

Descriptors marked with an asterisk are included in the subject index.

AGRICULTURE

Bogdanowicz, J. and Dziezyc, J.
SELECTION OF TRACTORS AND TILLAGE IMPLEMENTS ACCORDING TO SOIL CONDITIONS AND RELIEF (Dobor Ciagnikow i Narzedzi Rolniczych w Zaleznosci od Warunkow Glebowych i Rzezby Terenu) tr. by D. Brzowtowska. [Nov 61] [10]p. PL-480 Agr.
Order from OTS $0.50 60-21535

Trans. of Nowe Rolnictwo (Poland) 1957 [v. 6] no. 18, p. 785-787.

DESCRIPTORS: *Agriculture, *Soils, *Classification, Poland, *Tools, *Tractors, *Agricultural machinery.

Nesterov, Ya. S.
THE ROLE OF MATERNAL POLLEN IN INTERVARIETAL POLLINATION OF THE APPLE (Rol' Materinskoi Pyl'tsy v Mezhsortovom Opylenii Yabloni). [Dec 61] 5p. 1 ref. PL-480 Agr.
Order from OTS $0.50 60-21902

Trans. of Agrobiologiya (USSR) 1956, no. 4, p. 132-135.

DESCRIPTORS: *Pollen, *Fruits, *Fertility, Growth, Seeds.

Several varieties of apple were artificially pollinated in 1949 to 1953 by using pollen of other varieties with and without an admixture of maternal pollen. The degree of self-fertility in different varieties fluctuated from complete self-sterility to partial self-fertility, and it varied strongly according to the year. In the self-pollinated trees the average weight of the fruit was less than that of fruit obtained under natural pollination and from a better pollinators. Self-pollination lowered the average weight and germination capacity of the seedlings. When a very small quantity of pollen from the maternal variety was mixed with pollen from the pollinating variety the percentage of fruit set was increased about 5%, the percentage of fruit remaining on the tree after a month was increased about 4%, and that remaining to be picked was increased about 2%. In intervarietal pollination the maternal pollen increased the average weight of the fruit and the quantity and quality of the seedlings from the fruit.

Strawinski, Konstanty and Seczkowska, Katarzyna.
A PRELIMINARY REPORT ON THE OCCURRENCE AND ECONOMIC SIGNIFICANCE OF THE THYSANOPTEROUS INSECT SPECIES IN LUBLIN PROVINCE (Wstepne Badania nad Rozpowszechnieniem Thysanoptera na Lubelszczyznie i Ustalenie ich Gospodarczego Znaczenia) tr. by A. Radziwill. [Dec 61] [14]p. 27 refs. PL-480 Agr.
Order from OTS $0.50 60-21406

Trans. of Uniwersytet Marii Curie-Sklodowskiej. Annales. Sectio E: [Agricultura] (Poland) 1952, v. 7, no. 15, p. 473-486.

DESCRIPTORS: Documentation, *Cereals, Insects, *Pest control, Growth, Economics, Corn, Wheat, Rye, Poland, *Agriculture, Tobacco, *Triatoma

Plant Cultivation

Anfinnikov, M. A., Dobrushin, Ya. V. and others.
EXPERIENCE OBTAINED IN THE AERIAL CHEMICAL CONTROL OF ACORN WEEVIL IN IZYUM LESKHOZ (Iz Opyta Aviakhimbor'by s Zheludevym Dolgonosikom v Izyumskom Leskhoze). [Dec 61] 3p. PL-480 Agr.
Order from OTS $0.50 60-21867

Trans. of Lesnoe Khozyaistvo (USSR) 1955, v. 8, no. 2, p. 49-50.

DESCRIPTORS: *Trees, *Pest control, *Hexachlorocyclohexanes, *Insecticides.

Filippova, A. K.
PERMEABILITY OF FROZEN FOREST LITTER TO WATER (Vodopronitsaemost' Merzloi Lesnoi Podstilki). [Dec 61] 11p. 15 refs. PL-480 Agr.
Order from OTS $0.50 60-21881

Trans. of Gosudarstvennyi Gidrologicheskii Institut. [Trudy] (USSR) 1956, v. 54, p. 119-125.

DESCRIPTORS: *Forestry, *Soils, *Water, Decomposition, *Permafrost, Ice, Permeability, Abosrption, Precipitation, Freezing, *Moisture, Snow, *Hydrology

Moisture content of the frozen litter of the oak forest belts and plantings in Kamennaya Steppe and Veliko-Anadol varies from 100 to 700% of absolutely dry weight, and water content in a 1-cm layer from 3 to 8 mm. The whole layer of frozen litter contains from 10 to 30 mm of water. Frozen litter with a small content (less than 4 mm in a 1-cm layer) has the greatest volume of free pores (50-60%) and a low degree of frost penetration. At a water content from 4 to 7 mm the volume of free pores decreases down to 20%, and the frost degree increases to become moderate. A high frost degree is observed at maximum water content (over 7 mm in a 1-cm layer) and at a minimum volume of free pores (from 20 to 1%). As the flow of thaw water through the frozen litter can take place only at the presence of free pores, the hydraulic permeability of the litter is determined by its frost degree: weakly frozen litter with a large volume of free pores has the same high hydraulic permeability as thawed litter; heavily frozen litter with a small volume of free pores has only slight permeability. Owing to the irregularity of dampness and moisture penetration in autumn, frozen litter represents a surface nonuniform by the degree of frost penetration, and, consequently, by hydraulic permeability as well. The presence of patches of slightly frozen litter in the midst of heavily frozen litter makes for preservation of a high degree of permeability of the frozen litter. (Author)

Hejnowicz, Z.
ONTOGENIC STUDIES ON SHOOT APICES IN CHAMAECYPARIS PISIFERA AND AN INTERPRETATION ON THE FORM SQUARROSA (Badania Rozwojowe nad Wierzcholkami Pedu Chamaecyparis Pisifera i Interpretacja Formy Squarrosa) tr. by Jacques Rossi. [Nov 61] [46]p. 69 refs. PL-480 Agr.
Order from OTS $0.50 60-21388

Trans. of [Polskie Towarzystwo Botaniczne]. Acta Societatis Botanicorum Poleniae, 1957, v. 26, no. 2, p. 413-466.

DESCRIPTORS: *Pine, Trees, *Growth, *Cells, Plants, *Classification, Microbiology.

Chamaecyparis pisifera squarrosa has been proved to be the primitive form resembling the mature specimens of the supposed ancestors of the present day species Chamaecyparis pisifera rather than its juvenile form as hitherto presumed; this was found on the grounds of analysis of shoots of mature specimens of Chamaecyparis pisifera typica, Ch. pisifera squarrosa and of those of young seedlings of this species. In analysing the growth pattern of the apices on the grounds of cell arrangement, the thesis has been substantiated according to which shoot apices of Ch. pisifera are growing accordingly to the basal type, some amount of longitudinal growth occurring at the summit; especially so in forma squarrosa. (Author)

Kartavenko, N. T.
FUNGI CAUSING CEDAR TIMBER ROT IN THE URALS (Griby, Vyzyvayushchie Gnil' Drevesiny Kedra na Urale). [Dec 61] 31p. 33 refs. PL-480 Agr.
Order from OTS $0.50 60-21890

Trans. of Akademiya Nauk SSSR. Institut Biologii [Sverdlovsk]. Trudy, 1955, no. 6, p. 119-144.

DESCRIPTORS: *Trees, *Foresty, *Fungus infections, Pathology, *Age factors, *Climatic factors, Pigments, Fungi, Diseases, Tissues (Biology), Wood.

The main parasites of cedar in the massifs studied were the following fungi: Chaetoporellus litschaueri, root polyporus--Fomitopsis annosa, Schweinitz's polyporus--Phaeolus schweinitzii, pine polyporus--Phellinus pini, sulfur-yellow polyporus--Laetiporus sulphureus, larch polyporus--Fomitopsis officinalis, fringed polyporus--Fomitopsis pinicola, Stereum abietinum, honey agaric--Armillariella mellea and Ischnoderma resinosum. The different degrees of infection by fungi of the cedar-tree stands of the Urals depend on the type of the cedar forest. The least infected are the Calamagrostis-mixed grass, high mountainous and exposed summit types. The bilberry cedar forests of the mid- and upper slopes are more highly infected. The degree of infection of various types of cedar forests is directly dependent on their age: with increasing age the percentage of defectiveness also increases. The degree of spread of rot along the diameter and height of the trunk of ailing cedars fluctuates considerably and depends on the species of fungi causing the damage, and on age and condition of tree stands and time of infection. The primary pathological-anatomical changes taking place in the damaged wood are characterized by an accumulation in the cell cavities of a pigment excreted by the hyphae of the fungi. (Author)

Starostin, S. G.
AVIATION IN PLANT PROTECTION [Aviatsiya na Zashchite Rastenii]. 6 Nov 61 [7]p. JPRS: 11008.
Order from OTS or SLA $1.10 62-13424

Trans. of Zaschita Rastenii ot Vreditelei i Boleznei (USSR) 1960 [v. 5] no. 10, p. 1-3.
Another trans. is available from LC or SLA mi$1.80, ph$1.80 as 61-15831, 6 Jan 61, 8p.

DESCRIPTORS: *Plants, *Pest control

ASTRONOMY
Astrophysics

NEWS OF THE ASTROPHYSICAL INSTITUTE, 1957, VOL. 5, NO. 7: SELECTED ARTICLES. 8 Mar 61 [36]p. 7 refs. MCL-57; AD-258 799.
Order from OTS or SLA $3.60 61-27031

Unedited rough draft trans. of [Akademiya Nauk Kazakhskoi SSR, Alma-Ata]. Astrofizicheskii Institut. Izvestiya, 1957, v. 5, no. 7, p. 66-79 and 144-153.

DESCRIPTORS: *Astrophysics, Technological intelligence, *Solar energy, *Spectrographic analysis, Solar spectrum, *Solar corona, Solar observatories, Temperature, Measurement, Ions, Fluxmeters.

Contents:
Investigation of the coronal spectrograph and determination of temperature of the internal corona by non-eclipsed spectra, by M. G. Karimov and S. O. Obashev

Determination of the concentration of ions in the individual coronal rays by non-eclipsed pictures, by M. G. Karimov

On the problems of improving the precision of measurements of the intensity of the flux of direct solar radiation, by I. I. Maslennikov.

Berdichevskaya, V. S.
STRUCTURE OF SUNSPOTS ACCORDING TO THE THEORY OF RADIATIVE EQUILIBRIUM (Stroenie Solnechnykh Pyaten po Teorii Luchistogo Ravovesiya) tr. by M. Slade. [1961] [20]p. (foreign text included) 15 refs. [CSIRO] Trans. no. 5548.
Order from OTS or SLA $1.60 61-28769

Trans. of Astronomicheskii Zhurnal (USSR) 1954, v. 31, no. 1, p. 51-59.
Another trans. is available from LC or SLA mi$2.70, ph$4.80 as 60-13113, F-TS-9764/V [1959] [20]p.

DESCRIPTORS: *Sunspots, Theory, Solar radiation, Pressure, Absorption, Temperature.

Theoretical investigations of spots in radiant equilibrium indicate that the pressure and the coefficient of absorption are higher in a spot than in the surrounding photosphere. The low temperature of sunspots can be explained by the great optical depth in the column of gas that forms the spot. Consideration of the energy exchange with the surrounding photosphere as well as with the underlying layers in a model in which the surface temperatures (when $\tau \approx 0$) of spot and photosphere are the same. When $\tau^* = 0.7$ the temperature of the spot is equal to its effective temperature $T^* = T_e$. In this case the temperature gradient with respect to the optical depth $dT/d\tau$ is less in the spot than in the photosphere, and the darkening of the spot towards the limb of the disc must be correspondingly less. (See also 59-19529)

Varvarov, N.
COSMIC TELLUROMETER. 10 Oct 61, 4p.
JPRS: 10489.
Order from OTS $0.50 61-31655

Trans. from Ekonomicheskaya Gazeta (USSR) 1961, 8 Jan, p. 4.

DESCRIPTORS: *Celestial mechanics, Cosmic rays, Photographic analysis, *Cosmic ray telescopes, Optical tracking, Optical equipment, Space probes, Artificial planetoids, *Earth models, *Configuration, *Gravity, Model tests, *Ellipsoids, Planetary atmospheres, Solar systems, Flight paths, Flight speeds, *Ballistic cameras, *Satellite vehicle trajectories, Radar equipment, Rotation, Photoelectrons, Television equipment, Instrumentation, Telemetering data, Mass spectrometers.

In view of the absence of data concerning the precise shape and dimension of earth, the computed distances to celestial bodies are rather approximate. This implies that many other characteristics of celestial bodies (the mass of celestial bodies, their gravitational field, speed of motion, temperature, visible brilliance and others) associated with their distance from earth, likewise lack in precision. Since these data are fundamental constants in astronomy, astrophysics, cosmology and other areas in the study of the universe, it means that we are still unable to obtain a more accurate representation of the cosmos which surrounds us. Earth satellites signify a new era in the development of knowledge concerning the shape and dimensions of our planets. They represent a real possibility for the successful solution of these problems, which are very complex, but also very important for science and practice. (Author)

BEHAVIORAL SCIENCES

Personnel and Training

BIOGRAPHIES OF SELECTED SOVIET SCIENTISTS.
26 Sep 61 [106]p. JPRS: 10273.
Order from OTS or SLA $9.10 61-28582

Trans. of Akademiya Nauk SSSR. Vestnik, 1960 [v. 31] no. 7, p. 3-13 and 40-110.

DESCRIPTORS: *Scientific personnel, Scientific organizations, USSR.

Contents:
To the All-Union Conference of Scientific Workers
To the Central Committee of the Communist party of the Soviet Union and to the Council of Ministers USSR
Appeal of the All-Union Conference of Scientific Workers to all workers of science in the Soviet Union
At the All-Union Conference of Scientific Workers
Discussion of M. V. Keldysh's report by L. A. Artsimovich and others
For a close tie between science and life by A. N. Kosygin
Reception at the Grand Kremlin Palace
Gold medals and name prizes of the Academy of Sciences USSR

Plisko, V. A.
THE MILITARY APPLICATION OF ELECTRONIC COMPUTERS. 3 Aug 61 [90]p. 10 refs. MCL-898/1+2
Order from OTS or SLA $8.10 61-28376

Unedited rough draft trans. of mono. Elektronnye Mashiny v Voennom Dele, Moscow, 1960, 74p.

DESCRIPTORS: *Computers, Military equipment, *Military training, *Electronic equipment, Scientific research, Military intelligence, *Military personnel, Guided missile computers, Radar range computers, Mathematical computer data, Fire control computers, Automatic, Control systems, Weapons, Industrial research, Flight simulators, Operations research, Radar, Meteorological data, *Programming, Machine translation, Cybernetics.

Psychology

Anan'ev, B. G., Kostyuk, G. S. and others, eds.
PSYCHOLOGICAL SCIENCE IN THE USSR, VOL. I.
12 Dec 61 [816]p. 2299 refs. JPRS: 11466.
Order from OTS $8.00 62-11083

Trans. of mono. Psikhologicheskaya Nauka v SSSR, Vol. 1, Moscow, 1959.

DESCRIPTORS: *Psychology, *History, Sociology USSR, *Perception, *Sensory perception, *Hearing, *Vision, *Taste, *Tactual perception, *Space perception, *Proprioception, Analysis, *Conditioned reflex, Motor reactions, Reaction (Psychology), Bibliography, Physiology, Emotions, *Cerebral cortex, Sensitivity, Stimulation, *Electrophoresis, Potassium, Calcium, Pathology, *Nervous systems, *Memory, *Reasoning, Stimulation, Color vision, Eye, Light adaptation, Neurology, Visual actuity, *Visual perception, *Auditory perception, Auditory thresholds, Olfactory thresholds, Optical illusions, *Blindness, Time, Children, Animals, *Attention, *Education, Training, *Memory, *Behaviour, *Intelligence tests, Intelligibility, *Speech, Speech transmission, Mechanics

Contents:
The historical approach to the study of the psyche of man, by A. N. Leont'ev
The contribution of Soviet psychological science to the theory of sensation, by B. G. Anan'ev
The reflex bases of perception, by E. N. Sokolov
Certain physiological regularities and mechanisms of visual sensations and perceptions, by E. N. Semenovskaya
Research on perception, by P. A. Shevarev
Orientation in space, by F. N. Shemyakin
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Basic problems of the psychology of attention, by N. F. Dobrynin
Problems of the psychology of memory, by P. I. Zinchenko
The development of memory, by A. A. Smirnov
The principle of determinism and the psychological theory of thinking, by S. L. Rubinshtein
Problems of the psychology of thinking, by G. S. Kostyuk
The development of investigations on the formation of mental operations, by P. Ya. Gal'perin
On ways of studying speech mechanism, by N. I. Zhinkin
Studies of the problem of the speech mechanisms of thinking, by A. N. Sokolov
Speech development and the formation of mental processes, by A. R. Luriya
Problem of conditioned reflex mechanisms of higher mental processes, by E. I. Boiko.

Hollander, E. P.
APPLICATIONS OF THE "PEER-RATING" TECHNIQUE (Sur les Applications de la Technique de Nomination-Entre-Pairs). [1961] [14]p. 19 refs.
Order from SLA $1.60 61-20433

Trans. of Revue de Psychologie Appliquée (France) 1958, v. 8, no. 3, p. 189-198.

DESCRIPTORS: *Personnel, *Psychology, Test methods, Effectiveness.

The purpose of this article is to give a summary of the more important work undertaken with this technique and to show its possibilities of application in different fields. We are particularly going to consider the results obtained in recent and fundamental research concerning the technique itself. (Author)

BIOLOGICAL SCIENCES

CYBERNETICS IN BIOCHEMISTRY AND ELECTRON PARAMAGNETIC SPECTRA OF BIOPOLYMERS.
14 Nov 61 [86]p. (14 figs. omitted) 85 refs. JPRS: 11030.
Order from OTS or SLA $8.10 62-13533

Trans. of Vsesoyuznoe Khimicheskoe Obshchestvo. Zhurnal (USSR) 1961, v. 6, no. 3, p. 268-274 and 319-324.

DESCRIPTORS: *Biochemistry, *Cybernetics, Proteins, Nucleic acids, Acids, Synthesis, *Polymers, Electrons, *Paramagnetic resonance, Resonance, Magnetic resonance, Hyperfine structure, Free radicals, Enzymes.

Contents:
Reproduction and transfer of information during the synthesis of biological macromolecules, by Zh. A. Medvedev
Electron paramagnetic resonance spectra of biopolymers, by L. A. Blyumenfel'd.

Lyubishchev, A. A.
THE APPLICATION OF BIOMETRICS IN TAXONOMY (O Primenenii Biometrii v Sistematike). [Dec 61] 11p. 5 refs. PL-480 Int.
Order from OTS $0.50 60-51147

Trans. of Leningrad U. Vestnik (USSR) 1959, v. 14, no. 9, [Seriya Biologii, no. 2] p. 128-136.

DESCRIPTORS: *Medical research, Mathematical prediction, *Classification, Reliability, *Triatoma, Differential equations, Numerical analysis.

The purpose of this paper is to find better criteria and enable the determination of the so-called "cryptic" forms, i.e., the forms which apparently do not show any external morphological distinctions, but differ in their physiological, ecological, or internal characters. (Author)

Sacca, Giuseppe and Rivosecchi, Leo.
A NEW SUBSPECIES OF MUSCA DOMESTICA L. FROM THE ETHIOPIAN REGION (Una Nuova Sottocpecie di Musca Domestica L. della Regione Etiopica) tr. by M. Slade. [1960] [5]p. (foreign text included) 5 refs. Trans. no. 3666.
Order from OTS or SLA $1.10 60-17497

Trans. of [Accademie Nazionale dei] Lincei. [Classe di] Sc[ienze] Fiz[iche], Mat[ematiche] i Nat[urali]. Rend[iconti] (Italy) 1955, v. 19, p. 497-498.

DESCRIPTORS: Diptera, *Houseflies, *Classification, Ethiopia.

Saeki, Aritsune.
STUDIES ON FISH CULTURE IN THE AQUARIUM OF CLOSED-CIRCULATING SYSTEM: ITS FUNDAMENTAL THEORY AND STANDARD PLAN, tr. by Grace Y. Beard. 30 Apr 59 [20]p. 15 refs.
Order from OTS or SLA $1.60 59-18376

Trans. of [Nihon Suisan Gakkaishi] (Japan) 1958, v. 23, no. 11, p. 684-695.

DESCRIPTORS: *Fishes, *Marine biology, Excretion, Decomposition, Carbonic acids, Ammonia, *Organic materials, Ecology, *Biosynthesis, Nitrogen, Bacteria, Oxidation, Nitriles, Water filters, Water tanks, *Aerobiology, Sand, *Standards.

Anatomy and Physiology

Kisin, I. E.
METHODS OF STUDYING THE VOLUMETRIC CORONARY BLOOD FLOW RATE, THE OXYGEN CONSUMPTION BY THE HEART AND THE WORK OF THE HEART (Metody Izucheniya Ob'emnoi Skorosti Koronarnogo Krovotoka, Potrebleniya Serdtsem Kisloroda i Raboty Serdtsa). 3 Nov 61 [14]p. 74 refs. JPRS: 10856.
Order from OTS or SLA $1.60 62-13328

Trans. of Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya (USSR) 1951, v. 5, no. 4, p. 72-77.

DESCRIPTORS: *Heart, Blood, *Blood circulation, *Oxygen consumption, Measurement, Volumetric analysis, Physiology.

Oetinger, R. and Hauser, H.
AN ELECTRICAL NETWORK FOR THE INVESTIGATION OF THE MECHANICAL VIBRATIONS OF THE INNER EAR. [1961] 26p.
Order from ATS $36.40 ATS-48N56G

Trans. of Acustica (Switzerland) 1961, v. 11, p. 161-177.

DESCRIPTORS: *Ear, *Vibration, *Electrical networks, Recording devices, Physiology.

Räihä, C.-E.
PREMATURITY, IMPORTANCE AND ATTEMPTS AT PREVENTION (Prematuritet, Betydelse och Försök Till Profylax tr. by P. Pallamary. 26 Jan 60, 18p. (5 figs. refs. omitted) 1-23a-60.
Order from OTS or SLA $1.60 60-15080

Trans. of Nordisk Medicin (Sweden) 1959, v. 61, no. 22, p. 819-823.

DESCRIPTORS: *Pregnancy, Preventive medicine, Infants, Mothers, Embryos.

The etiology of prematurity is discussed and it is postulated that the working capacity of the pregnant woman in relation to the demand of work is an important factor which determines the birth weight of the child and the duration of pregnancy. The working capacity can be objectively estimated by measuring the heart volume using X-ray in two dimensions. There is a significant correlation between the heart volume of the pregnant woman and the birth weight of the baby, and also between the heart volume and the risk of premature birth. By advising mothers who had a heart volume below 320 cc per square metre of body surface to avoid heavy work and to rest for some hours every day, the frequency of prematures was reduced to 2.4%, with only 3 prematures with a birth weight below 2,000 g, out of a total of 20. The prenatal mortality fell to 1.6%. Among 797 cases there were 8 stillbirths and 5 deaths during the first week of life. (Author)

Schormüller, J. and Fresenius, R.
THE CALCIUM BINDING CAPACITY OF PEPTIDE FRACTIONS OF ENZYMATIC CASEIN HYDROLYSATES (Calciumbindungsvermögen von Peptidfraktionen Enzymatischer Caseinhydrolysate) tr. by D. A. Sinclair. 1961, 20p. 29 refs. NRCC Technical trans. 969.
Order from NRCC $1.00 NRCC C-3736

Trans. of Z[eitschrift für] Lebens[mittel]-Untersuch[ung] u[nd] -Forsch[ung] (West Germany) 1961, v. 114, no. 5, p. 397-406.

DESCRIPTORS: *Calcium compounds, *Enzymes, *Peptides, *Casein, *Phospholipids, Spectrographic analysis.

Botany

Aizenshtat, Ya. S.
INFLUENCE OF REMOTE SPECIES POLLEN ON SEGREGATION IN INTERVARIETAL TOMATO CROSSES: A SHORT REPORT (Vliyanie Pyl'tsy Dalekikh Vidov na Rasshcheplenie pri Mezhsortovykh Skreshchivaniyakh Tomatov (Kratkoe Soobshchenie)). [1961] [6]p. Trans. A-1292.
Order from OTS or SLA $1.10 61-28447

Trans. of Trudy po Prikladnoi Botanike, Genetike i Selektsii (USSR) 1959, v. 32, no. 3, p. 299-303.

DESCRIPTORS: *Pollen, *Plants, *Tomatoes, *Genetics, Mutations.

Red and yellow tomatoes were crossed to study the effects of a remote species pollen on the transmission of inherited characteristics. The control group was pollenized with an unlimited amount of pollen. Another

group had limited pollenization. A third group had limited pollenation with additional, unlimited, alien pollenation from wild potatoes, nightshade and eggplant. In the control group, the red, or dominate trait was found in a 2.8:1 ratio to the yellow, the recessive trait. This approximates Mendel's law of the transmission of dominate and recessive characteristics. In the limited pollenation all the plants had yellow fruit which was the recessive trait. When the alien pollen was added to a limited pollenation the offspring showed that the red color was transmitted in a ratio of 1.9:1 which closely approxiates the Mendelian law.

Guzhev, Yu. L.
HOW TIMES OF BUD-BURST IN CULTIVATED FRUIT AND OAK SEEDLINGS CAN BE MODIFIED BY A REGULATION OF SOIL MOISTURE (Izmenenie Srokov Nachala Vegetatsii u Seyantsev Plodovykh Kul'tur i Duba Putem Regulirovaniya Vlazhnosti Pochvy). [Dec 61] 9p. 5 refs. PL-480 Agr.
Order from OTS $0.50 60-21885

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Biologicheskaya, 1958 [v. 23, no. 1] p. 104-111.

DESCRIPTORS: *Trees, *Fruit, Growth, Ecology, Soils, *Moisture, Water.

Experiments showed that under conditions of soil drought (25 to 30 % of the field capacity) arboreal species develop the ability to start into growth earlier, while at an optimal humidity the ability of making a delayed start is developed. The fact that the seedlings of all cultures under trial changed the rhythm of their development in one definite direction when their water regime was changed confirms one of the fundamental assumptions of the Michurin theory, according to which the change in living conditions leads to organic forms undergoing changes in a definite direction, adequate to the effect of the environmental external conditions.

Kownacka, Maria.
PRELIMINARY OBSERVATIONS ON ZIG-ZAG CLOVER (TRIFOLIUM MEDIUM L.) (Wstepne Obserwacje nad Koniczyna Pogieta (Trifolium Medium L.)) tr. by S. Dzieduszycki. [Nov] 61 [9]p. 6 refs. PL-480 Agr.
Order from OTS $0.50 60-21416

Trans. of Roczniki Nauk Rolniczych. Series F: [Melioracji i Uzytkow Zielonych] (Poland) 1958, v. 72, no. 3, p. 1-6.

DESCRIPTORS: *Plants, *Grasses, Food, *Ecology, Agriculture, *Classification, Erosion

Shumilina, Z. K.
STRATIFICATION OF SEEDS OF TREES AND SHRUBS, tr. by Z. Shapira. 1961, 64p. 34 refs. PL-480 Agr.
Order from OTS $0.75 60-51012

Trans. of mono. Stratifikatsiya Semyan Drevesnykh i Kustarnikovykh Porod, Moscow, 1940 [68]p.

DESCRIPTORS: *Seeds, *Trees, *Plants, Preparation, Growth, Water, *Stratification.

The results are summarized of investigations on the stratification of tree and shrub seeds carried out by the All-Union Scientific Research Institute of Agricultural and Forest Amelioration from 1935 to 1939. The conditions under which the preparation of seeds for germination is effected and the changes occurring in the seeds during stratification were studied and on this basis the most efficient methods of stratification were devised. For the study of the seeds' biological peculiarities and an elucidation of the most effective methods of stratification, the trials were made on small test samples (about 2,000 seeds per sample) but with a great number of variants. For a study of the methods and techniques of seed stratification under industrial conditions; the trials were carried out with large test samples (up to 15 kg of seeds per test sample). The results show that prolonged failure to germinate is due to different causes, as for instance to the coatings impeding the swelling of seeds (in honey locust, white acacia), or to the emergence of the embryo (in oleaster); to the slow internal physiological changes in the seed kernel (in the warty spindle tree, and others) or to a sum-total of causes such as the effect of seed coats, internal processes, and others (in dry seeds of linden, cherry, apple, and others), etc. Because of these peculiarities of seeds it is necessary to examine each species separately as to methods of preparation of seeds for germination.

Talieva, M. N.
THE SIGNIFICANCE OF ANTHOCYANINS IN THE IMMUNITY OF PLANTS (Znachenie Antotsyanov v Immunitete Rastenii). [Dec 61] 5p. 10 refs. PL-480 Agr.
Order from OTS $0.50 60-51016

Trans. of Glavnyi Botanicheskii Sad [Pushkinskoe]. Byulleten' (USSR) 1954, no. 17, p. 91-94.

DESCRIPTORS: *Plants, *Fungus infections, Glucosides, *Plant pigments, *Immunization, Toxicity Spores, Cyanuric acid.

The objects of these investigations were species of Botrytis - (B. cinerea Pers., B. alli Munn, Botrytis sp.) affecting the dahlia plant. The intensity of the growth of their spores in an anthocyanin solution was investigated. These experiments have shown that neither extracts of colored dahlia flowers, nor the juice of colored onion bulbs exerted a toxic or an inhibitory influence on the growth of the spores of the Botrytis types. On the contrary, the addition of the tissue juices from plants, whether colored by anthocyanins or not, exerted an apparently stimulating influence on the growth of the Botrytis spores. Solutions of anthocyanins, in concentrations of 1 to 10%, have no toxic influence on the growth of Botrytis spores. The germination of the spores in solutions at a concentration of from 3 to 10% is somewhat slower, but the growth of the germ tubes is more intense than in the control. In the anthocyanin solutions, the spores are usually swollen, and their dimensions increase 1.5 to 2 times, and the germ tubes become much branched. Direct sunlight inhibits the growth of Botrytis spores. Anthocyanin has probably no photodynamic influence. In anthocyanin solutions of low concentration (1-3%) at pH 2.3 and in a sucrose solution at low pH value, the Botrytis spores did not grow The aglucone of the anthocyanin has a toxic influence on spores of Botrytis cinerea Pers. and Botrytis sp.

Microbiology

Hjärre, A., Dinter, Z., and Bakos, K.
CONCERNING CULTURE EXPERIMENTS WITH SWINE INFLUENZA VIRUS (SHOPE) AND THE VIRUS OF ENZOOTIC SWINE PNEUMONIA IN VITRO (Über Züchtungsversuche mit dem Schweine-influenzavirus (Shope) und dem Virus der Enzootischen Schweinepneumonie in Vitro). [1961] 22p. 7 refs.
Order from SLA $2.60 61-20422

Trans. of Nordisk Veterinärmedicin (Denmark) 1954, v. 6, p. 919-935.

DESCRIPTORS: *Tissues (Biology), Culture media, *Swine, *Virus diseases, *Virus pneumonia, *Influenza viruses, Growth, Preparation.

Tissue culture (TC) technics used in work on the poliomyelitis virus were employed in the study of the swine influenza virus (SIV) and the enzootic swine pneumonia virus (EPSV). Tissue cultures from pig kidneys and lungs were embedded in chicken plasma with a nutrient media of amniotic fluid. These cultures were inoculated with both viral agents after the culture was well established. The presence of the virus in the TC was determined by hemagglutination tests. Virus concentrations were established by titration in chicken embryos. Immune sera produced in rabbits by using the original and the TC viral agents were used as controls. After the sixth passage the cytopathogenic activity of the SIV was easily recognizable. These results showed that pig TC can be used for the growth and culture of a virus pathogenic to swine. The isolation and continued culture of the EPSV were not consistent and its culture was quite difficult. The development of cytopathogenicity and cell destruction was much more rapid for SIV than for EPSV. Some strains of EPSV lost their virulence in TC growth.

Ivanov, M. V. and Ryzhova, V. N.
A STUDY OF THE CONDITIONS OF THE ACTIVITY OF SULFATE-REDUCING BACTERIA IN THE GROUND WATERS OF ROZDOL. Pt. 4 of the Microbiological Studies of the Carpathian Sulfur Deposits. [1961] 6p.
Order from ATS $11.15 ATS-34N55R

Trans. of #Mikrobiologiya (USSR) 1961, v. 30, no. 2, p. 280-285.

DESCRIPTORS: *Sulfur, *Deposits, Reduction, *Bacteria, *Microbiology, *Sulfates, Hydrology.

Torban, M. A.
THE CAUSES OF TITER REDUCTION DURING STORAGE OF "DIAFERM-3" ANTITOXIC SERA (O Prichinakh Snizheniya Titra pri Khranenii Antitokosicheskikh Syvorotok "Diaferm-3"). 28 Aug 61 [9]p. 7 refs. JPRS: 9954.
Order from OTS or SLA $1.10 61-28276

Trans. of Ukrayins'kyi Biokhimichnyi Zhurnal (USSR) 1961, v. 33, no. 2, p. 175-179.

DESCRIPTORS: *Immunology, *Antitoxins, *Antibiotics, *Antibodies, Diphtheria, *Toxicity, *Titration, *Proteins, Microbiology, *Bacterial vaccines.

The relationships between titer reduction and the degree of protein denaturation and proteolysis of serum albumins was studied. The serum proteins were precipitated with 3% trichloracetic acid. The residual non-protein nitrogen and the increase of aromatic amino acids soluble in trichloracetic acid were determined. The norms for the interaction of seroproteins with 21 dyes were established. These were used in the determination of the degree of protein denaturation. The titer changes of horse, antitetanus and antidiphtherial sera during prolonged periods of storage were tabulated. The proteins of antitetanus sera showed more intense denaturation than those in antidiphtheria sera. Autolysis of antitetanus sera was greater under storage temperatures of 37° than in refrigerated storage. This autolysis is not a factor in the destruction of antitoxin. The denaturation of proteins is the basic cause of sera titer reduction. The higher the protein ballast in the sera the less protein denaturation occurs. Refrigeration decreased titer loss. The antitetanus sera had the highest titer loss.

Pathology

RESEARCH ON "CH'I-KUNG" THERAPY: THE TREATMENT OF GASTRIC AND DUODENAL ULCERS BY CH'I-KUNG WITH INSPECTION OF 71 CASES FOR TREATMENT EFFECTS. 26 Sep 61 [20]p. JPRS: 10270.
Order from OTS or SLA $1.60 61-28609

Trans. of mono. Ch'ing Chu Chien Kuo Shih Chou Nien I Hsüeh K'o Hsüeh Ch'eng Chiu Lun Wen Chi [Collected Essays on the Achievements of Medical Science in Celebration of the Tenth Founding Anniversary of the Nation] v. 1, Peiping, 1959, p. 389-493.

DESCRIPTORS: *Therapy, *China, Medical research, Intestines, Peptic ulcer, Tuberculosis, Hypertension.

Research is summarized that has been done by some of the more than 100 ch'i-kung therapy units that have been established in China during the last 10 years. Clinical practice shows that ch'i-kung therapy (similar to yoga) induces many comprehensive changes throughout the body. Generally speaking, ch'i-kung is not used to treat specific diseases, but to aid convalescence by improving the entire body health of a patient. Attention is devoted to posture, breath control, and training of the will. The method has a wide scope, either by itself or in combination with other methods of treatment. In the Second Tuberculosis Hospital of Shanghai, ch'i-kung therapy was combined with other methods of treatment. In the Second Tuberculosis Hospital of Shanghai, ch'i-kung therapy was combined with orthadox medical treatment on 118 patients with active tuberculosis, 48 of whom had cavities. After 2 months 66.6% of these patients showed shrinking and disappearance of the cavities at a much higher rate than through the use of medical treatment alone.

Ch'i-kung was effectively used on 40 cases of chronic high blood pressure by the Shanghai Research Institute of High Blood Pressure. (See also 61-31507)

Dubilei, V. V.
THE EXPERIENCE OF TEACHING IN A HOSPITAL CLINIC. 16 Oct 61 [6]p. JPRS: 10471.
Order from OTS or SLA $1.10 61-28778

Trans. of Terapevticheskii Arkhiv (USSR) 1961, v. 33, no. 6, p. 92-94.

DESCRIPTORS: *Education, *Medicine, Training, *Students, *Medical personnel.

The general program of teaching medical students in a hospital for general internal medicine with its own outpatient-department is described. The students are similiar to third and fourth year medical students in this country. Students are assigned definite patients for study and diagnosis. They have to justify their diagnosis at a conference of senior physicians. This type of teaching apparently is an innovation in medical education in USSR. As part of their training and because of the shortage of physicians, students are assigned as district physicians during summer-training programs. Students were assigned to industrial and public health clinics for experience in these fields. They were expected to outline and develop individual health plans for the workers. In each assignment time is allotted for completing required written reports which appear from the context to be state documents.

Efroimson, V. P.
ANALYSIS OF THE CONTROL MECHANISMS OF CARCINOGENESIS (Analiz Upravlyayushchikh Mekhanizmov Kantserogeneza). 2 Oct 61 [48]p. 77 refs. JPRS: 10294.
Order from OTS or SLA $4.60 61-28742

Trans. of #Problemy Kibernetiki (USSR) 1961, no. 5, p. 217-243.

DESCRIPTORS: *Analysis, Control, *Neoplasms, *Etiology, Synthesis, *Nucleic acids, Cells (Biology), *Mutations, Genetics, Virus diseases.

Current research was analyzed to determine the role in carcinogenesis of the factors which restrain the ability of somatic cells for anarchic, malignant, multiplication. The appearance of a malignant tumor is regarded as a break-down of these restraints. The ability to resynthesize the products of catabolism into desoxyribonucleic acid (DNA) and ribonucleic acid (RNA) is essential to cell multiplication. This is not present in most mature somatic cells. Tumor cells have this power, which may be due to somatic mutations of the genes. A chain of somatic mutations that alter the course of intracellular synthesis of DNA and other "scarce" cell materials may disturb the nonautonomy of such cells. The multiplication of such cells that have undergone mutation toward autonomy contributes to the development of new autonomizing mutants, and tumor formation. The genetic resistance of the cells to the carcinogenizing effect of somatic mutations is so stable that carcinogenesis sets in only with multiple somatic mutations and a viral invasion of a cell having a susceptible genotype.

Ehrengut, Wolfgang.
PROBLEMS AND CAUSES OF UNSUCCESSFUL SMALLPOX VACCINATION (Probleme und Ursachen der erfolglosen Pockenschutzimpfung) tr. by K. A. Hochschwender. 20 June 60, 14p. (1 fig. omitted) 17 refs. No. 6-14-60.
Order from OTS or SLA $1.60 60-19486

Trans. of reprint (p. 1-9) of Deutsche Medizinische Wochenschrift (West Germany) 1959, v. 84, no. 48, p. 2158-2160 (Pub. by Georg Thieme Verlag, Stuttgart).

DESCRIPTORS: *Smallpox, *Virus vaccines, Immunology, *Immunization.

Heine, U., Graffi, A. and others.
ELECTRON MICROSCOPIC EXPERIMENTS ON NORMAL CELLS AND TUMOR CELLS OF RAT'S LIVER (Elektronmikroskopische Untersuchungen an Normalen Zellen und Tumorzellen der Rattenleber) tr. by K. A. Hochschwender. 30 June 60, 12p. (8 figs. omitted) 17 refs. No. 6-24-60.
Order from OTS or SLA $1.60 60-19481

Trans. of reprint of Zeitschrift für Ärztliche Fortbildung (East Germany) 1957, v. 51, no. 15, p. 648-652.

DESCRIPTORS: *Liver, *Neoplasms, *Cells (Biology), Electron microscopy.

Hitzig, W. H.
THE PHYSIOLOGICAL DEVELOPMENT OF THE "IMMUNO GLOBULINS" (GAMMA AND BETA$_2$ GLOBULINS) (Die Physiologische Entwicklung der "Immunglobuline" (Gamma- und Beta$_2$-Globuline)) tr. by W. H. Everhardy. 10 Nov 59, 15p. (2 figs. omitted) 22 refs.
Order from OTS or SLA $1.60 59-22582

Trans. of Helv[etica] Paediatr[ica] Acta (Switzerland) 1957, v. 12, p. 596-604.

DESCRIPTORS: *Immunology, *Antibodies, *Blood proteins, Physiology, *Electrophoresis, Synthesis, *Infants.

Montestruc, E.
REACTIVATION BY B. C. G. OF RESIDUAL LEPROMATOUS LEPROSY, TEST BY BLANCHING AND SUSPENSION OF TREATMENT? (Le Reactivation par le B. C. G. des Lepres Leprometeuses Residuelles, Test de Blanchiment et de Suspension du Traitement?) tr. by R. P. June 61, 3p. (refs. omitted).
Order from SLA $1.10 61-18766

Trans. of Soc[iété de] Path[ologie] Exotique. Bull[etin] (France) 1960, v. 53, no. 3, p. 398-401.

DESCRIPTORS: *Leprosy, Tests, *Tuberculous vaccine, Immunization.

Leprous reactivations after B. C. G. administration in lepromatous patients whose illness is apparently cured clinically and bacteriologically are indisputable. But these reactivations may not appear in patients whose

infection has not yet disappeared. What's more, they can present a degree of seriousness which is not possible to foresee or direct. Finally, these reactivations appear to be absent in lepromatous patients whose Mitsuda reactions have spontaneously turned their Mitsuda positive after a shorter or longer period of cure. It does not seem justifiable to use the B. C. G. as a means of creating a positive Mitsuda or as a test of cure. (Author)

Pizon, Pierre.
ON THERAPY FOR BRONCHOPULMONARY CANCER (Sur la Therapeutique du Cancer Bronchopulmonaire) tr. by Tatiana Boldyreff. 26 May 60, 38p. (6 figs. refs. omitted).
Order from OTS or SLA $3.60 60-17652

Trans. of Journ[al] de Chirurgie (France) 1958, v. 75, no. 3, p. 287-310.

DESCRIPTORS: *Therapy, Neoplasms, Respiratory system, *Cancer research, *Thoracic surgery, *X-rays, *Radiation effects.

Terzian, H.
ORTHOSTATIC HYPOTENSION CAUSED BY TUMOR OF THE PARASELLAR REGION (Ipotensione Ortostatica da Tumore della Pegione Parasellare). [May 60] [13]p. 15 refs.
Order from SLA $1.60 60-16935

Trans. of Rassegna di Neurologia Vagatativa (Italy) 1955, v. 11, p. 233-246.

DESCRIPTORS: *Brain tumors, *Posture, *Pituitary gland, *Hypotension, *Radiation effects, *Electroencephalography, Diagnosis, Radiography

Clinical, radiological and electroencephalographic data are reported of two subjects with tumors in the parasellar region. Clinical symptoms are dominated by episodes of orthostatic hypotension. In both cases the location of the lesion was established on basis of the diencephalo-mesencephalic signs and radiological evidence and in both cases the orthostatic hypotensive episodes disappeared following radiation therapy of the tumor. The various pathogenetic theories of orthostatic hypotension are taken into consideration and particularly the peripheral origin of this entity is discussed, as well as the central origin (bulbar or hypothalamus). Based on these two case reports and on modern concepts of the organization of the reticular structures in the brain stem, the syndrome of orthostatic hypotension is considered in relation to narcolepsy and catalepsy suggesting to group it in the complex of episodical manifestations of meso-diencephalic lesions. (Author)

Yagud, S. L.
CORRELATION BETWEEN THE IMMUNOLOGICAL AND ALLERGIC REACTIVENESS IN ANIMALS IN EXPERIMENTAL INFECTION (Sootnoshenie Mezhdu Immunologicheskoi i Allergicheskoi Reaktivnost'yu u Zhivotnykh pri Eksperimental'noi Infektsii). 20 Apr 61, 6p. Trans. V-1686.
Order from OTS or SLA $1.10 61-19773

Trans. of mono. Nauchno-Issledovatel'skii Institut Epidemiologii i Mikrobiologii, Kiev. Materialy Nauchnykh Konferentsii, Kiev, 1959, p. 194-196.

DESCRIPTORS: *Antigens, *Immunology, Amoebic dysentery, *Allergy, Toxicity, Sensitization, Bacterial vaccines.

One group of cats was infected with dysentery by 5 daily oral inocculations. A second group received the same inocculation in one dose. A third group was given the dysentery vaccine. Agglutinin titer and opsonic indexes were made during the course of the disease. Sensitivity tests were done on the skin of the inner ear and muscle of the small intestine. Allergic reactions were produced in both types of tissue from 5 to 10 days after inocculation and up to 60 days after inocculation. The allergic reactions of the infected groups were the same. These reactions were similiar in the vaccinated group but developed more slowly and were not as pronounced. Allergic reactions were present before antibodies could be demonstrated in the blood. It is assumed that the increased sensitivity of cats to the dysentery antigen is the result of the antigenic action.

Pharmacology and Toxicology

Büch, O. and Wagner-Jauregg, Th.
A CONTRIBUTION TO THE PROBLEM OF ANTIPHLOGISTIC TESTS. [1961] 6p. (2 figs. omitted) 18 refs.
Order from SLA $1.10 61-20565

Trans. of Arzneimittel-Forschung (West Germany) 1960, v. 10, no. 10, p. 834-836.

DESCRIPTORS: *Fever therapy, *Rheumatic fever, *Heat therapy, Hydrogen compounds, Peroxides, Drugs, *Inflammation

The reported antiphlogistic and antipyretic effects of hydrogen peroxide, caustic soda solution, kaolin and talc indicate the difficulty of evaluating and interpreting the discoveries when the substances being investigated have tissue-irritating or inflammatory properties of their own. (Author)

Chin, Kuo-chang, Tsou, Kang and others.
STUDIES ON THE PHARMACOLOGICAL ACTIONS OF CORYDALIS. VI. EFFECTS OF CORYDALIS B ON THE CENTRAL NERVOUS SYSTEM. 8 Sep 61 [19]p. 33 refs. JPRS: 4949.
Order from OTS or SLA $1.60 61-28549

Trans. of Sheng Li Hsüeh Pao (Chinese People's Republic) 1960, v. 24, no. 2, p. 110-120.

DESCRIPTORS: *Corydaline derivatives, Benzedrine sulfate, *Drugs, Alkaloids, *Tranquilizing drugs, *Analgesics, Electroencephalography, *Sleep, *Nervous system, *Pharmacology.

Mice, cats and monkeys were used to clarify the tranquilizing and analgesic effects of di-tetrahydroplamate, a derivative of corydalis ambigura, designated as corydalis B. These studies included the effects on the sleep, the electroencephalograms, passive and spontaneous activities, and on the conditioned reflexes of the animals. Corydalis B showed synergetic action with hexobarbital sodium, by the lengthening of the periods of sleep. It reduced both passive and spontaneous activity in white mice and counteracted hyperactivity induced by amphetamine. Doses of corydalis B of over 30 mg/kg inhibited both conditioned and unconditioned reflexes of cats. When given in anaesthetic doses, this drug produced electroencephalographic waves characteristic of the brain in the tranquilized state, and of inhibited brain stem activity. Corydalis B aggravated strychnine convulsions, but inhibited metrazol convulsions.

Desaulles, P. A., Krähenbühl, Ch. and others. EXPERIMENTAL STUDY OF DIANABOL, A NEW ANABOLIC AGENT: 17α-METHYL-17β-HYDROXY-ANDROSTA-1, 4-DIENE-3-ONE [Etude Experimentale du Dianabol, un Nouvel Anabolisant: 17α-Methyl-17β-Hydroxy-Androsta-1, 4-Dien-3-One]. [1961] 21p. 49 refs.
Order from SLA $2.60 61-20766

Trans. of Schweiz[erische] Med[izinische] W[ochen]schr[ift] 1959, v. 89 [12 Dec] p. 1313-1318.
Another trans. is available from SLA mi$2.70, ph$4.80 as 60-10966 [1959] 29p.

DESCRIPTORS: *Androgens, *Hormones, Physiology, Switzerland, Metabolism, Tissues (Biology), Growth, Proteins, Methyl radicals.

Domenjoz, R., Theobald, W., and Mörsdorf, K. THE ACTION OF DRUGS ON SIMULTANEOUS FORMALIN AND DEXTRAN INFLAMMATION IN RATS. [1961] 3p.
Order from SLA $1.10 61-20573

Trans. of Arzneimittel-Forschung (West Germany) 1955, v. 5, p. 488-489.

DESCRIPTORS: *Inflammation, *Formaldehyde, *Dextron, Drugs.

For individual pharmaceuticals, in particular for ketobemidone, sodium salicylate and phenyl butazone, a different antiphlogistic effect on rats was observed. The present investigations show that this difference is also possible when both types of inflammation exist simultaneously in the same animal. (Author)

CHEMISTRY

JOURNAL OF APPLIED CHEMISTRY, 1942, VOL. 15, NO. 5: [TABLE OF CONTENTS] AND SELECTED ABSTRACTS. [1961] 4p. 2 refs.
Order from OTS or SLA $1.10 61-20336

Abstract trans. of Zhurnal Prikladnoi Khimii (USSR) 1942, v. 15, no. 5, p. #290-301 and 346-352.
#Complete trans. is available from INSDOC as T.654.

DESCRIPTORS: *Catalysts, *Carbon compounds, Sulfides, Polymerization, Chemical reactions, Oils, Esters, *Fatty acids, Heat, Aging, Films, Desiccants, Dehydration, *Chemistry, Abstracting.

Contents:
#Catalysts for the reaction of formation of carbon disulfide from the elemtnts [O Katalizatorakh dlya reaktsii obrazovaniya serougleroda iz elementov] by L. Ya. Markovskii and N. Khoroshkova
Research on polymerization and drying of oils and esters of fatty acids. IV. Heat of aging of films of linseed oil and method of rapid aging, by A. Ya. Drinberg and K. V. Ryashentsev.

JOURNAL OF GENERAL CHEMISTRY, 1941, VOL. 11, NO. 2: [TABLE OF CONTENTS] AND SELECTED ABSTRACTS. [1961] 5p. 2 refs.
Order from OTS or SLA $1.10 61-20377

Abstract trans. of Zhurnal Obshchei Khimii (USSR) 1941, v. 11, no. 2, p. 67-108 and 133-139.

DESCRIPTORS: *Chemistry, Abstracting, Periodicals, USSR, Hydrocarbons, Polymerization, Propenes, Acetylenes, Alcohols, Ethyl radicals, Benzoyl radicals, Phenyl radicals, Propyl radicals, Carbinols, Magnesium compounds, Organic compounds, Anhydrides, Hydrides, Isomeric transitions, Acids, Glycolic acids, Synthesis, Ketones, Carbonyl radicals, Hydrogenation, Catalysts, Iron, Bromine, Ethanol, Chemical reactions, Dehydration, Mercury, Aluminum compounds, Oxides, Hydrogen, Esters.
Contents:
Polymerization of C_nH_{2n-4} hydrocarbons with neighboring double and triple bonds. II. Dimerization and cyclization of isopropenylacetylene, by A. I. Zakharova and V. A. Bezel-Sycheva
Research on isomeric conversions of α-keto alcohols. III. Isomerization of ethyl benzoyl and phenyl propionyl carbinols, by T. I. Temnikova and E. F. Afanas'eva
Research on isomeric conversions of α-keto alcohols. IV. Interaction of ethyl benzoyl carbinol and phenyl propionyl carbinol with magnesium-organic compounds and with acid chloroanhydrides, by T. I. Temnikova
Addition of hydrogen to acetylene derivatives. XXXIII. Synthesis and catalytic hydrogenation of hydroxy acids of the acetylene series, by Yu. S. Zal'kind and B. I. Mikhant'ev
Catalytic hydrogenation of cyclic carbonyl-containing compounds, I, by T. I. Vekhotko
Catalytic hydrogenation of cyclic carbonyl-containing compounds, II, by T. I. Vekhotko
Reactions of iron and halogens with alcohols and ethers. IV. Reaction of iron and bromine with ethyl alcohol, by M. T. Dangyan
Promoting effect of mercury on aluminum oxide in dehydration of ethyl alcohol, by V. M. Nikitin and N. V. Razumov
Addition of hydrogen to acetylene derivatives: Hydrogenation of acetic esters of p-ditolylbutynediol, by A. I. Nogaideli and K. Ya. Dzagnidze.

PROGRESS OF CHEMISTRY, 1941, VOL. 10, NO. 2: [TABLE OF CONTENTS] AND SELECTED ABSTRACTS. [1961] 10p. 112 refs.
Order from OTS or SLA $1.10 61-20358

Abstract trans. of Uspekhi Khimii (USSR) 1941, v. 10, no. 2, p. 121-187 and 224-260.

DESCRIPTORS: *Chemistry, Abstracting, Resonance, Organic compounds, Vulcanization, Rubber, Chemical bonds, Valence, Molecular structure, Benzenes, Hydrocarbons, Energy, Fuels, Antiknock.

Contents:
Resonance in organic chemistry, by Ya. K. Syrkin and others
Vulcanization of rubber, by V. B. Margaritov
Institute of Organic Chemistry of the Academy of Sciences U.S.S.R. in 1941, by V. I. Ivanov.

Shikheev, I. A.
METHYLPROPYLACETYLENYLCARBINOL AND METHYLPROPYLVINYLCARBINOL AND HYDROCARBONS OBTAINABLE FROM THEM. [1961] 4p. 13 refs.
Order from OTS or SLA $1.10 61-20118

Condensed trans. of Zhurnal Obshchei Khimii (USSR) 1946, v. 16, p. 657-664.

DESCRIPTORS: *Carbinols, Methyl radicals, Propyl radicals, Acetylenes, Vinyl radicals, Hydrogenation, Dehydration, Glycols, *Hydrocarbons, Synthesis, Ketones, Condensation reactions.

Condensation of acetylene with methyl propyl ketone gave methylpropylacetylenylcarbinol and two stereoisomeric acetylenic glycols. By electrolytic hydrogenation of methylpropylacetylenylcarbinol methylpropylvinylcarbinol and methylethylpropylcarbinol were prepared. Dehydration of methylpropylvinylcarbinol gave 3-methyl-1, 3-hexadiene and its dimer. Dehydration of methylpropylacetylenylcarbinol gave 3-methyl-3-hexen-1-yne and its dimer (Author)

Analytical Chemistry

Bayer, E., Reuther, K.-H. and Born, F.
ANALYSIS OF AMINOACID MIXTURES BY MEANS OF GAS PARTITION CHROMATOGRAPHY (Analyse von Aminosaeure-Gemischen mittels Gas-Verteilunos-chromatographie) tr. by Tatiana Boldyreff. 24 Feb 60, 3p. (refs. omitted).
Order from OTS or SLA $1.10 60-15722

Trans. of Angewandte Chemie (West Germany) 1957, v. 69, no. 20, p. 640.

DESCRIPTORS: *Amino acids, Acids, Mixtures, Chromatographic analysis, *Gas chromatography

Bol'shova, T. A. and Starobinets, G. L.
PARTITION CHROMATOGRAPHY OF THE HYDROCARBONS OF PETROLEUM WAXES ON UREA. [1961] 5p.
Order from ATS $9.00 ATS-53N56R

Trans. of Khim[iya] i Tekhnol[ogiya] Topliv i Masel (USSR) 1961 [v. 6] no. 5, p. 17-21.

DESCRIPTORS: *Urea, *Petroleum, *Waxes, *Hydrocarbons, Chromatographic analysis.

Sauciuc, Al. and Sauciuc, J.
PAPER CHROMATOGRAPHY OF N-(PYRROLIDINOMETHYL)-TETRACYCYLINE. [1961] 3p.
Order from ATS $3.50 ATS-61N53RU

Trans. of Rev[ista de] Chim[ie] (Rumania) 1961, v. 12, no. 2, p. 96-97.

DESCRIPTORS: *Paper chromatography, *Tetracyclines, Chromatographic analysis, Pyrrolidinone.

Inorganic Chemistry

Belov, N. V.
BERLIN SYMPOSIUM ON THE SILICATES WITH MONOVALENT AND BIVALENT CATIONS. 23 Oct 61 [9]p. JPRS: 10783.
Order from OTS or SLA $1.10 62-13230

Trans. of Vsesoyuznoe Khimicheskoe Obshchestvo. Zhurnal (USSR) 1960, v. 5, no. 6, p. 686-688.

DESCRIPTORS: Symposia, East Germany, *Silicates, *Ions, Chemical reactions, Synthesis, Crystal structure.

Biryukov, N. D.
RELATIONSHIP OF THE NORMAL POTENTIALS OF METALS WITH THE DIMENSIONS OF ATOMS AND OF METALLIC OXIDE MOLECULES. [1961] 15p. 5 refs.
Order from OTS or SLA $1.60 61-18592

Trans. of #Zhur[nal] Neorganicheskoi Khimii (USSR) 1959, v. 4, [no. 12] p. 2670-2681.

DESCRIPTORS: *Metals, Potential theory, *Hydrogen, *Atoms, Metallic compounds, *Oxides, Molecules, Reduction, Molecular structure.

Normal potentials of metals in the series of tension were calculated ($E_{calc.}$), as function of reduction process by atomic hydrogen of the metallic oxides and hydroxides. The deviations of empiric E_o values from $E_{calc.}$ were calculated. It was found, that a curve, correlating the deviations to the sizes of atomic particles, exists for each group of periodic system and can be approximately considered as a linear relationship. (Author)

Schaefer, Harald, Goeser, Camill, and Bayer, Lisel.
CONTRIBUTIONS TO THE CHEMISTRY OF THE ELEMENTS NIOBIUM AND TANTALUM. IV. NIOBIUM TETRACHLORIDE AND ITS DECOMPOSITION INTO THE TRI- AND PENTACHLORIDES. [1961] 19p. 20 refs.
Order from SLA $1.60 61-20884

Trans. of Zeitschrift für Anorganische Chemie (East Germany) 1951, v. 265, no. 4/6, p. 258-272.
Another trans. is available from ES $11.00 [1961] 25p.

DESCRIPTORS: *Niobium, *Tantalum, *Niobium compounds, *Chlorides, Decomposition.

Semenkovich, S. A.
ALUMINUM MONOCHLORIDE, tr. by S. Klementaski. [1961] [14]p. 17 refs. FRI trans-149; DSIR NLL M.4005.
Order from OTS or SLA $1.60 61-28177

Trans. of #Zhurnal Prikladnoi Khimii (USSR) 1960, v. 33, no. 6, p. 1281-1285.
Also available from FRI as FRI Trans-149 [1961].

DESCRIPTORS: *Aluminum compounds, *Chlorides.

The results are given of an investigation of the system Al-AlCl-$AlCl_3$.

Organic Chemistry

Abramova, L. V., Sheverdina, N. I., and Kocheshkov, K. A.
A METHOD FOR THE PREPARATION OF DIALKYLTIN DIBROMIDES. [1961] 2p.
Order from ATS $3.00 ATS-89N56R

Trans. of Soviet patent 136, 313, filed 30 July 60 under no. 675, 166/23 (announced in Byulleten'Izobretenii (USSR) 1961, no. 5).

DESCRIPTORS: *Bromides, *Tin, Alkyl radicals, Synthesis, Tin compounds, Metalorganic compounds.

Areshidze, Kh. I. and Gakhokidze, A. M.
INVESTIGATION OF THE CHEMICAL COMPOSITION OF GEORGIAN OILS. II. AROMATIC HYDROCARBONS OF SUPSA OIL. [1961] 4p. 23 refs.
Order from OTS or SLA $1.10 61-18217

Condensed trans. of Zhurnal Prikladnoi Khimii (USSR) 1944, v. 17 [no. 9/10] p. 529-532.

DESCRIPTORS: *Hydrocarbons, Chemical analysis, *Oils, Benzenes, Toluenes, *Gasoline, Benzoic acids, Phthalic acids, Esters, Fractionation.

Aromatic hydrocarbons of fractions 60-95, 95-122 and 122-150° of Supsa oil were investigated. Benzene was identified in these fractions as mono- and dinitrobenzene. Toluene was identified in the form of benzoic acid and trinitrotoluene. Propyl- and isopropylbenzenes were identified as benzoic acid and trinitroisopropylbenzene. All three isomers of xylenes were found and identified as phthalic acids and their esters. (Author)

Beder, N. M., Geller, B. E., and Pakshver, A. B.
MOLECULAR COMPOSITION OF POLYACRYLONITRILE. [1961] 6p.
Order from ATS $9.15 ATS-44N56R

Trans. of Khim[icheskie] Volokna (USSR) 1960, no. 2, p. 33-36.

DESCRIPTORS: *Polymers, *Acrylonitriles, Molecular structure

Dogadkin, B. A. and Dontsov, A. A.
REACTION OF POLYETHYLENE WITH SULFUR. [1961] 5p.
Order from ATS $7.50 ATS-93N56R

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1961, v. 138, no. 6, p. 1349-1352.

DESCRIPTORS: *Ethylenes, Polymers, *Sulfur, Chemical reactions.

Dokukina, E. S., Roginskii, S. Z. and others.
CATALYSIS ON ORGANIC SEMICONDUCTORS PREPARED BY THERMAL TREATMENT OF POLYACRYLONITRILE. [1961] 4p.
Order from ATS $6.75 ATS-95N54R

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1961, v. 137, no. 4, p. 893-895.

DESCRIPTORS: Organic compounds, *Semiconductors, Catalysis, Catalysts, Preparation, *Acrylonitriles, Heat treatment.

Dubinin, M. M.
COMPOSITION OF UNIT CELLS AND MAXIMUM ADSORPTION VOLUMES OF DEHYDRATED SYNTHETIC ZEOLITE CRYSTALS. [1961] 5p.
Order from ATS $9.00 ATS-71N56R

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1961, v. 138, no. 4, p. 866-869.

DESCRIPTORS: *Organolites, *Crystals, Adsorption.

Elovich, S. Ya., Zhabrova, G. M. and others.
LAWS UNDERLYING THE SELECTION OF CATALYSTS FOR COMPLETE OXIDATION OF ORGANIC COMPOUNDS. [1961] [2]p. 8 refs.
Order from OTS or SLA $1.10 61-20176

Reprint of [Akademiya Nauk SSSR]. Comptes Rendus (Doklady) de l'Academie des Sciences de l'U.R.S.S., 1946, v. 52, p. 421-423.

DESCRIPTORS: *Catalysts, *Oxidation, *Organic compounds, Selection.

Fioshin, M. Ya., Kamneva, A. I. and others.
ELECTROCHEMICAL ADDITIVE DIMERIZATION AS A METHOD OF SYNTHESIS OF HIGHER DICARBOXYLIC ACIDS. [1961] 4p.
Order from ATS $6.65 ATS-35N56R

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1961, v. 138, no. 1, p. 173-176.

DESCRIPTORS: *Carboxylic acids, Acids, Synthesis, Electrochemistry, Additives, Chemical reactions.

Gefter, E. L.
ORGANOPHOSPHORUS MONOMERS AND POLYMERS. Mar 62, approx. 300p. 834 refs.
Order from ATS until 26 Feb 62 $13.00
after 26 Feb 62 $14.75

Trans. of mono. [Fosfororganicheskie Monomery i Polimery, Moscow] 1960 [287]p.

DESCRIPTORS: *Phosphorus compounds, *Polymers, Organic compounds, Phosphorus, Refraction, Molecular structure

Contents:
Unsaturated organosphosphorus compounds
Saturated organophosphorus compounds. Dihydroxy compounds
Refraction for some atomic groups of organophosphorus compounds
Carbon chain and hetero chain high polymers containing phosphorus in the side chains
Hetero chain high polymers containing phosphorus in the main chain
Other organophosphorus polymers
Applications of high polymers containing phosphorus

Gol'dshtein, I. P., Faizi, N. Kh. and others.
COMPLEXES OF DIPHENYLETHYLENE WITH TIN TETRACHLORIDE AND ORGANOTIN CHLORIDES. [1961] 5p.
Order from ATS $7.50 ATS-02N57R

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1961, v. 138, no. 4, p. 839-842.

DESCRIPTORS: *Complex compounds, *Styrenes, *Tin compounds, *Chlorides, Metalorganic compounds, Phenyl radicals, Ethylenes.

Horner, L. and Jurgens, E.
QUANTITATIVE DETERMINATION OF ORGANIC PEROXY COMPOUNDS IN MIXTURES. [1961] 7p.
Order from ATS $10.65 ATS-97N53G

Trans. of Angew[andte] Chem[ie] (West Germany) 1958, v. 70, no. 9, p. 266-268.

DESCRIPTORS: *Peroxides, *Organic compounds, Quantitative analysis, Mixtures, Chemical analysis.

Kloubek, Jan.
ENAMINES-IMINES. [1961] 13p. (43 refs. omitted).
Order from SLA $1.60 62-10197

Trans. of Chem[icke] Listy (Czechoslovakia) 1959, v. 53, p. 821-828.
Another trans. is available from SLA $1.60 as 61-10383 [1961] [17]p.

DESCRIPTORS: *Imines, *Amines, *Molecular isomerism, Molecular structure

For abstract see Technical Translations 6: 17, 1961.

Kolesnikov, G. S., Rodionova, E. F., and Fedorova, L. S.
CARBON-CHAIN POLYMERS AND COPOLYMERS. XI. SYNTHESIS, POLYMERIZATION AND COPOLYMERIZATION OF ESTERS OF VINYLPHOSPHONIC ACID. [1961] 6p.
Order from ATS $11.65 ATS-57N56R

Trans. of Vysokomolekularnye Soedineniya (USSR) 1959, v. 1, no. 3, p. 367-372.
Another trans. is available from OTS or SLA $1.60 as 61-18631 [1961] 12p.

DESCRIPTORS: *Polymers, Synthesis, Molecular structure, Polymerization, *Phosphonic acids, Copolymerization, Esters, *Vinyl radicals (Phosphonic).

Koton, M. M.
METHODS OF SYNTHESIZING NEW POLYMERS WITH RINGS IN THEIR CHAIN. [1961] [23]p. 80 refs.
Order from OTS or SLA $2.60 61-20639

Trans. of Khimiya i Tekhnologiya Polimerov (USSR) 1960 [v. 4, no. 7/8] p. 54-72.

DESCRIPTORS: *Polymers, Synthesis, Molecular weight, Catalysts, Catalysis, Molecular structure.

The survey is aimed at generalizing the material accumulating in the world literature on the synthesis of polymers with rings in their primary chains. Of greatest interest are the methods of obtaining polymers that contain elastic links along with rigid cyclic links.

Kovalenko, V. I
PREPARATION OF DIMETHYL PYROCARBONATE. [1961] 6p.
Order from ATS $9.95 ATS-78N54R

Trans. of #Zhur[nal] Obshchei Khim[ii] (USSR) 1952, v. 22, p. 1546-1550.

DESCRIPTORS: *Carbonates, Methyl radicals, Synthesis.

Krey, H.
PROCESS FOR THE PRODUCTION OF ALIPHATIC UNSATURATED CONJUGATED KETONES. Nov 61, 400 words.
Order from TTIS $3.60 TTIS-NS-16

Trans. of East German patent 21,542 appl. 2.12.58, pub. 8.7.61.

DESCRIPTORS: *Patents, Production, *Ketones, *Aliphatic compounds.

Lel'chuk, S. L.
EFFECT OF PROMOTERS IN CATALYTIC DEHYDROGENATION OF ALCOHOLS TO ESTERS AS RELATED TO THEIR POSITION IN THE PERIODIC TABLE. [1961] [4]p. 3 refs.
Order from OTS or SLA $1.10 61-20135

Trans. of [Akademiya Nauk SSSR]. Comptes Rendus (Doklady) de l'Academie des Sciences de l'U.R.S.S., 1945, v. 49, p. 652-654.

DESCRIPTORS: *Catalysts, *Alcohols, *Esters, *Dehydrogenation, *Chemical elements, Tables.

Levina, R. Ya. and Egorova, S. A.
SYNTHESIS OF BRANCHED-CHAIN OLEFINS AND PARAFFINS. III. INTERACTION OF 2,4-DIMETHYL-2-PENTENYL BROMIDE WITH ALKYLMAGNESIUM HALIDES. [1961] 4p. 9 refs.
Order from OTS or SLA $1.10 61-20121

Trans of Zhurnal Obshchei Khimii (USSR) 1946, v. 16, p. 821-824.

DESCRIPTORS: *Hydrocarbons, *Ethylenes, Octenes, Octanes, Heptanes, *Methyl radicals, Synthesis, *Bromides, *Magnesium compounds, Halides, *Alkyl radical, Organic compounds, Chemical reactions. *Methanes.

Interaction of an unsaturated tertiary bromide, namely 2,4-dimethyl-2-pentenyl bromide, a homolog of allyl bromide, with organomagnesium compounds is a convenient method of synthesis of a branched-chain unsaturated hydrocarbons with a quaternary carbon atom from which the corresponding saturated hydrocarbons can be obtained. By this method the following hydrocarbons have been synthesized not previously described in the literature: 2,4,4-trimethyl-2-octene, 2,4,4,6-tetramethyl-2-heptene, 2,4,4-trimethyloctane and 2,4,4,6-tetramethylheptane. (Author)

Loshadkin, N. A. and Smirnov, V. V.
THE CHEMISTRY AND TOXICOLOGY OF ORGANOPHOSPHORUS INHIBITORS OF CHOLINESTERASES: A REVIEW OF MODERN LITERATURE, tr. by G. M. Kosolapoff. Mar 62, approx. 140p. refs.
Order from ATS until 26 Feb 62 $12.00
after 26 Feb 62 $13.50

Trans. of suppl. to Russian ed. pub. 1961 of Some Aspects of the Chemistry and Toxic Action of Organic Compounds Containing Phosphorus and Fluorine, by B. C. Saunders

DESCRIPTORS: *Phosphorus compounds, Organic compounds, *Cholinesterase, Inhibition, Toxicity, *Cholines, Synthesis, Biochemistry

Contents:
Syntheses and properties of choline derivatives, by V. V. Smirnov
Some problems of the biochemical mechanism and toxic action of organophosphorus inhibitors of cholinesterases, by N. A. Loshadkin

Malkina, N. I. and Kazarnovskii, S. N.
THE SYNTHESIS OF CYANURIC ACID FROM UREA, PT. I. [1961] 6p.
Order from ATS $10.00 ATS-31N55R

Trans. of #Zhur[nal] Priklad[noi] Khim[ii] (USSR) 1961, v. 34, no. 7, p. 1583-1587.

DESCRIPTORS: *Cyanuric acid, Organic acids, Acids, Synthesis, *Urea, Chemical reactions

Malkina, N. I.
SYNTHESIS OF CYANURIC ACID FROM UREA, PT. II. [1961] 4p.
Order from ATS $6.25 ATS-81N55R

Trans. of #Zhur[nal] Priklad[noi] Khim[ii] (USSR) 1961, v. 34, no. 7, p. 1630-1632.

DESCRIPTORS: *Cyanuric acid, Organic acids, Acids, Synthesis, *Urea, Chemical reactions

Mikhailov, B. M. and Aronovich, P. M.
ORGANOBORON COMPOUNDS. LXXVII. POLYMERIZATION OF THE BUTYL ESTER OF VINYLBORIC ACID. [1961] 5p.
Order from ATS $8.00 ATS-89N54R

Trans. of Vysokomolekulyarnye Soedineniya (USSR) 1961, v. 3, no. 6, p. 861-864.

DESCRIPTORS: *Organic compounds, *Boron compounds, *Vinyl radicals, *Boric acids, Esters, Polymerization, Acids.

Norcross, G.
THE MANUFACTURE OF ALCOHOLS BY CARBONYLATION. [1961] 8p.
Order from ATS $12.20 ATS-90N561

Trans. of [la] Chim[ica] e [l'Ind[ustria] (Italy) 1961, v. 43, no. 8, p. 880-884.

DESCRIPTORS: *Alcohols, Production.

Nudel'man, Z. N., Sviridova, A. V., and Novikov, A. S.
SYNTHESIS OF LINEAR ALUMINOSILOXANE POLYMERS BY THE SILANOL CONDENSATION METHOD. [1961] 5p.
Order from ATS $9.40 ATS-21N56R

Trans. of Vysokomolekulyarnye Soedineniya (USSR) 1961, v. 3, no. 6, p. 841-846.

DESCRIPTORS: *Aluminum compounds, *Silanes, *Polymers, Synthesis, Condensation reactions

Okawara, Makoto, Haruki, Eiichi, and Imoto, Eiji.
SYNTHESIS OF POLYMER THIOLS CONTAINING VICINAL SH GROUPS. Rept. no. 6 of Studies on the Syntheses and Reactions of Functional High Molecular Compounds; [Paper] lectured at the Annual Conference of the Chemical Society of Japan (no. 12) Apr 59. [1961] 12p. 5 refs.
Order from SLA $1.60 61-18678

Trans. of Kogyo Kagaku Zasshi (Japan) 1961, v. 64, no. 1, p. 229-231.

DESCRIPTORS: Adsorption, Analysis, *Sulfonates, Hydrogen compounds, Sulfides, Synthesis, *Thiols, *Polymers, Ions, *Vinyl alcohol, *Vinyl radical, Chemical analysis, Heavy elements, *Acrylic resins, Silver, Mercury

By using polystyrene, polyvinyl alcohol, and polyacrylic acid as raw materials, the following high polymer thiols containing vicinal SH groups (III to VII), and in particular (I) and (II) as model compounds of (III) and (IV), were synthesized: $R\text{-}O\text{-}CH_2\text{-}CH(SH)\text{-}CH_2(SH)$; R:(p)$MeC_6H_4CH_2$ (I), i-Pr (II), $-[-CH_2CH(C_6H_4\text{-}CH_2(p))-]_n$ (III), $-(-CH_2\text{-}CH\text{-})_n$ (IV), $-[-CH(O\text{-}CH(CH_2)\text{-}O)\text{-}CH_2\text{-}CH-]_n$ (V), $-[-CH_2CH(C_6H_4SO_2(p))-]_n$ (VI), and $-[-CH_2CH(CO)-]_n$ (VII). Each polymer was measured for its Ag^+ and Hg^{2+} exchange adsorption quantities (E). Group IV gave especially large E values (Ag^+ 4.69 Hg^{2+} 5.93 meq/g). Because vicinal SH groups are easily oxidized, no constant relationship could be detected between the SH% and E, but in the case of (III) a proportional relationship was seen between SH% and E for Ag^+. (Author) (See also 61-18676)

Polyakova, A. M., Korshak, V. V., and Tambovtseva, E. S.
α-METHYLSTYRENES CONTAINING Sn, Pb and Ge. Pt. 7 of the Polymerization of Ring-Substituted α-Methylstyrenes under Pressure. [1961] 4p.
Order from ATS $4.60 ATS-92N53R

Trans. of Vysokomolekulyarnye Soedineniya (USSR) 1961, v. 3, no. 5, p. 662-664.

DESCRIPTORS: *Styrenes, *Methyl radicals, Tin, Lead, Germanium, Polymerization, Pressure.

Putokhin, N. I. and Yakovlev, V. I.
THE REACTION OF DIAZOTIZATION OF 2-THIENYLAMINE AND THE AZO COMPOUNDS OF THE THIOPHENE SERIES (Reaktsiya Diazotirovaniya 2-Tienilamina i Azosoedineniya Tiofenovogo Ryada) tr. by G. Belkov. 1961, 7p. NRCC Technical trans. 972.
Order from NRCC $0.50 NRCC C-3733

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1954, v. 98, no. 1, p. 89-91.

DESCRIPTORS: *Dyes, Synthesis, *Thiophenes, *Amines, *Azo compounds, Chemical reactions.

Skvarchenko, V. R., Tsybikova, D. Ts., and Levina, R. Ya.
NEW METHOD FOR THE SYNTHESIS OF p-TERPHENYLS. [1961] [1]p.
Order from OTS or SLA $1.10 61-18586

Trans. of #Zhur[nal] Obshchei Khimii (USSR) 1960, v. 30 [no. 10] p. 3504-3505.

DESCRIPTORS: *Benzene derivatives, Synthesis, *Diene synthesis.

Uchnovskii, G. L. and Chernobai, A. V.
POLYMERIZATION OF CYCLOPENTADIENE. [1961] 8p 10 refs.
Order from OTS or SLA $1.10 61-20640

Trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Khimiya i Khimicheskaya Tekhnologiya (USSR) 1959, v. 2 [no. 1] p. 96-101.

DESCRIPTORS: *Cyclopentadiene, Pentadienes, *Polymerization, Boron compounds, Fluorides, Catalysts, Catalysis, Polymers.

It is established that the most effective catalysts for the polymerization of cyclopentadiene are the complexes of boron trifluoride with organic substances (alcohols, simple and complex ethers) The effect of various factors (the concentration of the catalyst and monomer, nature of the solvents) on the polymerization process and the properties of polycyclopentadiene is investigated. The conditions for the stabilization of the polycyclopentadiene solutions have been investigated and also the possibility for the regeneration of the catalyst are shown. In the presence of increased concentrations of the catalyst, condensation of polycyclopentadiene takes place in the direction of left over double bonds.

Rafikov, S. R., Zhubanov, B. A. and others.
INVESTIGATIONS IN THE FIELD OF POLYMER SYNTHESIS. I. SYNTHESIS OF POLYAMIDES BASED ON XYLYLENEDIAMINES. [1961] 8p.
Order from ATS $13.45 ATS-28N55R

Trans. of Vysokomolekulyarnye Soedineniya (USSR) 1961, v. 3, no. 5, p. 699-705.

DESCRIPTORS: *Amides, *Polymers, Synthesis, Xylenes, Amines, Chemical reactions.

Sakaguchi, T. and Taguchi, K.
DETERMINATION OF TETRACYCLINE. Pt. 3 of Colorimetric Determination of Tetracyclines with the Use of Th(IV) Reagent. [1961] 5p.
Order from ATS $6.00 ATS-75N56J

Trans. of Bunseki Kagaku (Japan) 1957, v. 6, p.787-790

DESCRIPTORS: *Tetracyclines, Determination, Reagents.

Shostakovskii, M. F., Kotrelev, V. N. and others.
STUDY OF THE FORMATION OF ORGANOTIN POLYMERS AS A FUNCTION OF THE POLYMERIZATION CONDITIONS AND SOME PHYSICOCHEMICAL PROPERTIES OF ORGANOTIN COPOLYMERS. Pt. 5 of the Synthesis and Transformation of Organotin Monomers and Polymers. [1961] 4p.
Order from ATS $6.00 ATS-88N56R

Trans. of Vysokomolekulyarnye Soedineniya (USSR) 1961, v. 3, no. 8, p. 1131-1134.

DESCRIPTORS: *Tin, *Polymers, Metalorganic compounds, Synthesis, Physical chemistry, Polymerization, Copolymerization.

Tyurayaev, I. Ya. and Erofeeva, A. V.
KINETIC RELATIONSHIPS IN THE DEHYDROGENATION OF BUTANE IN A FLUIDIZED CATALYST BED. [1961] 7p.
Order from ATS $8.75 ATS-15N55R

Trans. of #Zhur[nal] Priklad[noi] Khim[ii] (USSR) 1961, v. 34, no. 2, p. 370-375.
Another trans. is available from OTS or SLA $1.10 as 61-18587 [1961] 8p.

DESCRIPTORS: *Butanes, Dehydrogenation, Catalysts, *Fluidized solids, Reaction kinetics.

Veibel, Stig.
NEW METHODS FOR THE IDENTIFICATION OF ORGANIC SUBSTANCES WITH THE AID OF FUNCTIONAL GROUPS (Nouvelles Méthodes pour l'Identification des Substances Organiques a l'Aide des Groupements Fonctionnels). [1961] 28p. 19 refs.
Order from SLA $2.60 61-20769

Trans. of Chim[ie] Anal[ytique] (France) 1954, v. 36, no. 6, p. 145-152.

DESCRIPTORS: Alcohols, Aldehydes, Ketones, Organic acids, Acids, Amines, *Organic compounds, Identification, Molecular weight, Determination, Pyrazolones.

Vol'kenshtein, M. V.
HEATS OF ISOMERIZATION OF ALIPHATIC HYDROCARBONS. [1961] [5]p. 7 refs.
Order from OTS or SLA $1.10 61-20165

Reprint of [Akademiya Nauk SSSR]. Comptes Rendus (Doklady) de l'Academie des Sciences de l'U.R.S.S., 1946, v. 51, p. 213-216.

DESCRIPTORS: *Aliphatic compounds, *Hydrocarbons, *Heat of formation, Zero melting, *Molecular isomerism, Isomeric transitions.

Zharkova, V. and Moldavskii, B.
A STUDY OF THE ISOMERIZATION OF AMYLENES AND THEIR EQUILIBRIUM CONCENTRATIONS. Pt. 9 of Isomerization of Hydrocarbons. [1961] 8p.
Order from ATS $12.90 ATS-87N56R

Trans. of Zhur[nal] Obshchei Khim[ii] (USSR) 1948, v. 18, no. 9, p. 1674-1680.

DESCRIPTORS: *Hydrocarbons, *Pentenes, Isomeric transitions, Chemical equilibrium.

Zhdanov, S. P. and Buntar, N. N.
INVESTIGATION OF CONDITIONS FOR THE FORMATION OF SODIUM ZEOLITES IN LOW-TEMPERATURE HYDROTHERMAL SYNTHESIS. [1961] 4p.
Order from ATS $7.85 ATS-45N55R

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1961, v. 138, no. 1, p. 119-122.

DESCRIPTORS: *Sodium, *Organolites, Synthesis, Temperature, Low temperature research.

Physical Chemistry

Balabanov, E. I., Berlin, A. A. and others.
ELECTRICAL CONDUCTIVITY OF POLYMERS WITH CONJUGATE BONDS [Elektroprovodnost' Polimerov s Sopryazhennymi Svyazyami]. [1961] [5]p. 17 refs. [DSIR NLL] M 4328.
Order from OTS or SLA $1.10 62-13147

Trans. of Akademiya Nauk SSSR. Doklady, 1960, v. 134, no. 5, p. 1123-1126.
Other translations are available from OTS $0.50 as 61-11879, JPRS: 4306; ATS $7.00 as ATS-37M47R [1960] 6p.; Abstract trans. is available from LC or SLA mi$1.80, ph$1.80 as 61-15658 AID-60-107, 13 Dec 60, 2p.

DESCRIPTORS: *Polymers, Electrical conductance, Conductivity, Physical properties, Semiconductors, Chemical bonds.

Berezin, I. V. and Ragimova, A. M.
INVESTIGATION OF THE PROCESS OF ESTER FORMATION IN THE LIQUID-PHASE OXIDATION OF OCTADECANE. [1961] 6p.
Order from ATS $10.25 ATS-36N56R

Trans. of #Zhur[nal] Fiz[icheskoi] Khim[ii] (USSR) 1961, v. 35, no. 4, p. 842-847.

DESCRIPTORS: Liquids, *Hydrocarbons, Oxidation, *Esters, Production

Cottin, M.
STUDY OF THE IONS PRODUCED BY ELECTRON IMPACT IN WATER VAPOR. [1961] 18p.
Order from ATS $26.70 ATS-88N53F

Trans. of J[ournal de] Chim[ie] Phys[ique] (France) 1959, v. 56, p. 1024-1035.

DESCRIPTORS: *Water vapor, *Ionization, *Electrons, Bombardment, *Ions.

Dubinin, M. M., Vishnyakova, M. M. and others.
INDUSTRIAL SAMPLES OF SYNTHETIC ZEOLITES. Pt. 1 of the Adsorption Properties and Secondary Pore Structure of Adsorbents with a Molecular Sieve Action [1961] 10p.
Order from ATS $18.45 ATS-21N55R

Trans. of #Akad[emiya] Nauk SSSR. Otdel[enie] Khim[icheskikh] Nauk. Izvest[iya] 1961, no. 3, p. 396-406.

DESCRIPTORS: *Organolites, Adsorbents, Adsorption

Ewers, Josef.
OLEFINE- AND BENZOLE FORMATION IN COKE OVENS. [1959] [11]p. (1 fig. omitted) 23 refs.
Order from SLA $1.60 61-20668

Trans. of Brennstoff-Chemie (West Germany) 1955, v. 36, no. 3/4 [p. 33-37].
Another trans. is available from BISI £3 15s as BISI-1247, 1959.

DESCRIPTORS: *Benzenes, *Ethylenes, Production, Coke, Ovens, Benzoyl radicals, Chemical analysis, Coal, Mineral oils.

Fedorov, T. F. and Shamrai, F. I.
PHYSICO-CHEMICAL PRINCIPLES OF VACUUM-THERMIC TREATMENT OF LITHIUM. 4 Aug 61 [18]p. 19 refs. MCL-962; AD-264 512.
Order from OTS or SLA $1.60 61-28487

Unedited rough draft trans. of mono. Primenenie Vakuma v Metallurgii (Use of Vacuum in Metallurgy) Moscow, 1960, p. 137-142.

DESCRIPTORS: *Lithium, Preparation, Purification, Vaporization, Vacuum furnaces, Lithium compounds, Oxides, Aluminates, Silicates, Reduction, Reaction kinetics, Enthalpy, Entropy, Thermodynamics, Technological intelligence, USSR.

The method of continuous weighing was used to study the kinetics of aluminothermy with respect to lithium aluminate. The metal produced by vacuum aluminothermy exceeded in purity the electrolytic product.

Keier, N. P.
EFFECT OF ELECTRONIC STRUCTURE ON OXYGEN EXCHANGE IN NICKEL OXIDE. [1961] [9]p. 14 refs. [DSIR LLU] M.4008.
Order from OTS or SLA $1.10 61-28463

Trans. of Kinetika i Kataliz (USSR) 1960, v. 1, no. 2, p. 221-228.

DESCRIPTORS: *Nickel compounds, *Oxides, *Oxygen, *Exchange reactions.

Characteristics of oxygen exchange are investigated in the surface and internal layers of nickel oxide containing various proportions of lithium oxide in solid solution. Lithium cations in the nickel oxide lattice are found to accelerate the oxygen exchange at all sites. The mechanism of this effect is discussed. (Author)

Kondrat'ev, V. N.
SELF-IGNITION. [1961] 26p. (1 fig. omitted) 28 refs. MDF K-254.
Order from OTS or SLA $2.60 62-13700

Trans. of mono. Kinetika Khimicheskikh Gazovykh Reaktsii [Kinetics of Chemical Gas Reactions] Mos[cow] 1958, chap. 10, p. 535-552.

DESCRIPTORS: *Reaction kinetics, Chemical reactions, *Gases, *Ignition.

Lihl, Franz and Jenitschek, Peter.
DECOMPOSITION OF HEXAGONAL ALUMINUM BORIDE AlB_2. [1961] 8p. (11 figs. omitted) 8 refs.
Order from SLA $1.10 61-20751

Trans. of Zeitschrift für Metallkunde (West Germany) 1953, v. 44[no. 8/9] p. 414-417.

DESCRIPTORS: *Aluminum compounds, *Borides, Decomposition, Aluminum, *Boron, *Alloys, Production, Microstructure, Radiography.

Nagase, Kinihiko and Sakaguchi, Kahei.
SEPARATION OF POLYETHYLENE GLYCOL FROM THE NONIONIC (SURFACE) ACTIVE AGENT BY THE METHOD OF COUNTER-CURRENT DISTRIBUTION EXTRACTION. Rept. 2 of Study on the Reactions for Adding Ethylene Oxide. [1961] 11p. (2 figs. 4 tables omitted) 8 refs.
Order from SLA $1.60 61-20681

Trans. of Kogyo Kagaku Zasshi (Japan) 1961, v. 64, no. 4, p. 635-638.

DESCRIPTORS: *Separation, Quantitative analysis, *Glycols, *Ethylenes, *Ethylene oxide, Detergents, *Wetting agents.

Measurement of the distribution coefficients of some nonionic active agents (surfactants) and polyethylene glycol showed) that the n-butanol and water system is the most suitable solvent. This method has been applied to polyoxyethylene laurel ether and polyoxyethylene nonylphenyl ether. After repeating the operation three times, poly-ethylene glycol was separated and quantitatively determined comparatively simply and accurately. The method of operation can be simplified when the content of polyethylene glycol is small. (See also 61-10682)

Natanson, S. V.
ADSORPTION OF CYANINE DYES ON SILVER HALIDES. [1961] 15p.
Order from ATS $16.95 ATS-13N57R

Trans. of Vsesoyuz[nyi] Nauch[no]-Issledovatel'[skii] Kinofotoinst[itut]. Trudy (USSR) 1960, no. 40, p. 34-49.

DESCRIPTORS: *Phthalocyanines, *Dyes, Adsorption, *Silver compounds, *Halides, Adsorbents.

Nazarova, Z. N. and Tsukervanik, I. P.
ALKYLATION OF AROMATIC COMPOUNDS WITH ALCOHOLS IN THE PRESENCE OF ANHYDROUS FERRIC CHLORIDE. [1961] 4p. 4 refs.
Order from OTS or SLA $1.10 61-16906

Trans. of Zhurnal Obshchei Khimii (USSR) 1944, v. 14 [no. 1/2] p. 77-80.

DESCRIPTORS: *Alcohols, *Iron compounds, *Chlorides, *Catalysis, Condensation reactions, Alkyl radicals, *Reaction kinetics, Phenols, Benzenes

Attempts to condense normal primary aliphatic alcohols with benzene and phenol in the presence of anhydrous ferric chloride were unsuccessful. Experiments of condensation of benzyl alcohol with benzene and phenol gave diphenylmethane and benzylphenol, both in 58% yields. Condensation of allyl alcohol with benzene and toluene gave yielded allylbenzene and also 2-chloropropylbenzene, or allyltoluene and 2-chloropropyltoluene, respectively. When the reaction is carried out at room temperature allyl derivatives prevail (yield, 32%) and at 80° 2-chloropropyl derivatives prevail (52% yield). Condensation of allyl alcohol with phenol was unsuccessful. (Author)

Pavlova, S. A. and Tverdokhlebova, I. I.
THE ISOPIESTIC METHOD FOR DETERMINING THE MEAN MOLECULAR WEIGHT. Sep 60 [10]p. 18 refs. Courtaulds Misc. Lit. 3230; [DSIR LLU] M. 2612.
Order from OTS or SLA $1.10 61-23271

Trans. of Zhur[nal] Fi[zicheskoi] Khim[ii] (USSR) 1958, v. 32, no. 6, p. 1313-1318.

DESCRIPTORS: *Molecular weight, Determination, Measurement.

The possibility of determining molecular weights up to 50,000 by the isopiestic method was confirmed. This method may be applied for the determination of molecular weights in cases where osmometric methods fail. Signer bulbs may be used satisfactorily only when the thermostatic conditions are very strict, and if absolutely dry and very pure solvents, standards and examined substances are available. The modified method of Barger-Rust is the most convenient, accurate and least sensitive with respect to the purity of the solvents, standards and investigated substances. Satisfactory results have been obtained for substances with molecular weights up to 17000.

Raub, E. and Disam, A.
THE ELECTROCHEMICAL BEHAVIOR OF DIFFERENT KINDS OF ELECTROLYTIC NICKEL: A CONTRIBUTION TO THE PROBLEM OF THE CORROSION OF GALVANIC NICKEL AND NICKEL-CHROMIUM COATINGS. [1961] 10p.
Order from ATS $15.60 ATS-22N55G

Trans. of Metalloberflache (West Germany) 1961, v. 15, no. 7, p. 193-197.

DESCRIPTORS: *Electrochemistry, *Nickel coatings, *Chromium coatings, Electrolysis, Corrosion, *Nickel

Rozenfel'd, I. L. and Zhigalova, K. A.
MECHANISM OF OXYGEN TRANSFER THROUGH THIN LAYERS OF ELECTROLYTES. [1961] 5p.
Order from ATS $9.50 ATS-37N56R

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1955, v. 104, no. 6, p. 876-879.

DESCRIPTORS: *Electrolytes, *Oxygen, Mass transfer, Electrochemistry.

Rozhdestvenskii, D. S.
STUDIES ON ANOMALOUS DISPERSION IN VAPORS OF METALS: [SELECTED PARTS] tr. by Lloyd G. Robbins. [1961] [68]p. 45 refs. AERDL T-1024.
Order from OTS or SLA $6.60 61-28762

Trans. of mono. Raboty po Anomal'noi Dispersii v Parakh Metallov [Moscow] n. d., p. 15-113.

DESCRIPTORS: *Metallic smoke deposits, *Vapors, *Metals, Measurement, Instrumentation, Spectrographic data, *Hooks, Test methods, Tests, Theory, Scattering, Separation, Colloids, Particles, Distribution.

Contents:
Introduction
Final results of the dispersion theory and definition of the problem
Method and instruments
Plan of measurements and experimental verification of the Sellmeyer Formula
Method of "hooks"
Results of measurements according to the method of hooks
Measuring devices
Measurement of spectrograms.

Spitsyn, V. I., Spiridonov, F. M., and Kolli, I. D.
APPLICATION DE LA MÉTHODE D'AUTODIFFUSION À L'ÉTUDE DU MECANISME DE FORMATION DES HÉTÉROPOLY-COMPOSÉS [Primenenie Metoda Samodiffuzii k Izucheniyu Mekhanizma Obrazovaniya Geteropolisoedinenii] [The Application of the Self-Diffusion Method for Investigating the Formation Mechanism of Heteropoly Compounds] tr. by Vinogradoff. 6 May 60 [13]p. 5 refs. CEA Trans. no. R 894 (text in French).
Order from OTS or SLA $1.60 61-23811

Trans. in French of Zh[urnal] Fiz[icheskoi] Khim[ii] (USSR) 1958, v. 32, no. 5, p. 1143-1148.

DESCRIPTORS: *Sodium compounds, *Phosphates, *Tungstates, *Diffusion, *Radioactive isotopes

Sodium phosphate and normal sodium tungstenate were investigated by the method of self-diffusion, using isotopes P^{32} and W^{185}. At a pH of about 9 the diffusion coefficient of the phosphate ion exceeded that of the tungstenate ion almost three times, while at a pH = 6 to 8 an abrupt change of the diffusibility of the ions took place. In the weakly alkaline medium the addition of tungstenate changes the magnitude of the diffusion coefficient of the phosphate ions, so that in mixtures the self-diffusion of phosphate ions approaches the magnitudes characteristic for tungstenate

ions, and at pH = 7.8 practically the same values are obtained for phosphorus and tungsten. At a pH below 8.4 a process of complex formation takes place. The diagram of the ionic weights shows that an area with a mass close to that of W_4^{-2} is present, as well as one containing about 12 corresponding ion groups. It is assumed that the molecular ratio of phosphate-tungsten stenate ions of the used mixture has an effect on the composition of the complex, namely, the more WO_4^{-2} ions are present the more acidous the medium must be in order to reach the same diffusion coefficient.

Strizhkov, B. V., Lapitskii, A. V., and Blasov, L. G.
PHYSICOCHEMICAL INVESTIGATION OF THE DECOMPOSITION OF THE DOUBLE SALT BARIUM TITANYL OXALATE. [1961] 6p.
Order from ATS $7.75 ATS-98N55R

Trans. of #Zhur[nal] Priklad[noi] Khim[ii] (USSR) 1960, v. 33, no. 9, p. 2009-2014.

DESCRIPTORS: *Salts, Barium compounds, Titanium compounds, Nitrates, *Oxalates, Decomposition, Physical chemistry

Uchida, S. and Ito, Y.
A METHOD FOR THE ANALYSIS OF REACTION PRODUCTS FROM AMMONIA AND SUFLUR TRIOXIDE. Pt. 2 of Study of the Anhydrous Reaction Between Ammonia and Sulfur Trioxide. [1961] 7p.
Order from ATS $10.00 ATS-41N54J

Trans. of Kogyo Kagaku Zasshi (Japan) 1951, v. 54, no. 4, p. 256-258.

DESCRIPTORS: *Sulfur compounds, *Ammonia, Chemical reactions, *Oxides.

Uchida, S. and Ito, Y.
A NEW METHOD OF SYNTHESIS OF SULFAMIC ACID. Pt. 1 of Study of the Anhydrous Reaction Between Ammonia and Sulfur Trioxide. [1961] 6p.
Order from ATS $9.00 ATS-40N54J

Trans. of Kogyo Kagaku Zasshi (Japan) 1950, v. 53, no. 10, p. 423-425.

DESCRIPTORS: *Sulfamic acids, Synthesis, *Ammonia, Sulfur compounds, Oxides, Exchange reactions, Chemical reactions.

Vasil'eva, V. S., Drogaleva, I. V. and others.
GEOMETRICAL AND CHEMICAL MODIFICATION OF SILICA GEL FOR GAS CHROMATOGRAPHY PURPOSES. [1961] 5p.
Order from ATS $7.50 ATS-24N54R

Trans. of Akad[emiya Nauk SSSR. Doklady, 1961, v. 136, no. 4, p. 852-855.

DESCRIPTORS: *Silicon compounds, *Dioxides, *Gels, Preparation, *Gas chromatography.

Vorozhtsev, N. N. and Gurevich, D. A.
INVESTIGATION OF THE CATALYTIC OXIDATION OF PHENANTHRENE. I. INVESTIGATION OF THE INFLUENCE OF VARIOUS FACTORS UPON THE CATALYTIC OXIDATION OF PHENANTHRENE [Izuchenie Kataliticheskogo Okisleniya Fenantrena. I. Izuchenie Vliyaniya Razlichnykh Faktorov na Protsess Kataliticheskogo Okislensiya Fenantrena]. [1961] 14p. (3 figs. omitted) 29 refs.
Order from OTS or SLA $1.60 62-10048

Trans. of Zhur[nal] Priklad[noi] Khim[ii] (USSR) 1945, v. 18 [no. 1/2] p. 3-9.
Another trans. is available from SLA as RT-3438; A condensed trans. is available from OTS or SLA $1.10 as 61-18222 [1961] 6p.

DESCRIPTORS: Oxidation, *Phenanthrenes, Catalysts, Vapor phase, Coal tar, *Vanadium compounds, Oxides, Formaldehyde.
For abstract see Technical Translations 6: 584, 1961.

Zhabrova, G. M., Roginskii, S. Z., and Fokina, E. A.
PROMOTION OF CONTACTS BY MEANS OF ORGANOMETALLIC COMPOUNDS. [1961] [3]p. 6 refs.
Order from OTS or SLA $1.10 61-20175

Reprint of Akademiya Nauk SSSR. Comptes Rendus (Doklady) de l'Academie des Sciences de l'U. R. S. S., 1946, v. 52, p. 313-316.

DESCRIPTORS: *Metalorganic compounds, Catalysts, Decomposition, Chemical analysis, Reaction kinetics, Catalysis, Metals, Copper compounds, Chromates, Electrical equipment, *Electric connectors.

Zhukhovitskii, A. A., Selenkina, M. S., and Turkel'taub, N. M.
A METHOD OF CHROMATOGRAPHIC IDENTIFICATION OF COMPONENTS IN HYDROCARBON MIXTURES. [1961] 9p.
Order from ATS $14.90 ATS-93N54R

Trans. of Khim[iya] i Tekhnol[ogiya] Topliv i Masel (USSR) 1960, v. 5, no. 11, p. 57-64.
Another trans. is available from OTS or SLA $1.60 as 61-28180, TRC Trans-1051 [1961] [20]p.

DESCRIPTORS: *Hydrocarbons, Mixtures, *Chromatographic analysis, Test methods, Identification, Determination, Boiling, Gases, Liquids, Temperature, Molecular structure.
For abstract see Technical Translations 6: 835, 1961.

EARTH SCIENCES

THE TUNGUSKA METEORITE. 3 May 61, 2p. AID Rept. 61-58; AD-257 905.
Order from OTS or SLA $1.10 61-23499

Review of Meteoretika (USSR) 1960, v. 19, p. 103-104 and Akademiya Nauk SSSR. Doklady, 1961, v. 136, no. 1, p. 84-87.

DESCRIPTORS: *Meteorites, *Earth, Landing impact, Geological survey, Shock waves, Pressure, USSR, *Impact shock, Trees.

Contents:
Preliminary results of the work of the Tunguska meteorite expedition in 1958, by K. P. Florenskii and others
New data on the Tunguska catastrophe of 1908, by A. V. Zolotov.

Bleibtreu, A.
DANGERS ARISING FROM THUNDERSTORMS IN HIGH MOUNTAIN AREAS WHILE USING ELECTRIC BLASTING CAPS IN MINES. [1961] 21p. 5 refs.
Order from SLA $2.60 61-20728

Trans. of Montan-Rundschau (Austria) 1959, v. 7, no. 9, p. 183-190.

DESCRIPTORS: Mountains, Surface area, *Storms, *Mining engineering, *Explosives, Detonation, Accidents, Lightning, Electric currents, Climatic factors, *Electric detonators, Blast, Meteorology, Thunderclouds.

When insensitive detonators are used there exists hardly any danger of misfiring if lightning should strike the capping. However, suitable measures must be taken in the case of a lightning stroke into the near vicinity of the mine entrance in order to prevent dangerous portions of the lightning current from reaching the breast. (Author)

Gol'tsman, F. M. and Keil'man, Yu. N.
A UNIVERSAL FILTER FOR SEISMIC SIGNALS. [1961] 9p. 5 refs. [DSIR LLU] M 4057.
Order from OTS or SLA $1.10 61-28207

Trans. of Prikladnaya Geofizika (USSR) 1960, no. 25, p. 55-65.

DESCRIPTORS: *Seismic waves, Separation, *Electric filters, Design, Delay lines, Frequency, Circuits, Operation, Tests.

A variant of a universal filter is described, in which delay lines are used as "memory" cells. The scheme described does not require preliminary recording and subsequent reproduction of oscillations, as it produces a filtered signal at the output of the circuit in proportion to its intake into the circuit. The instrument has been developed in the Laboratory for the Dynamics of Elastic Media of Leningrad State University and can be used for the frequency filtration of any signals presented in the form of electric current oscillations, the spectrum of which lies in the seismic range of frequencies. (Extracted)

Khrgyan, A. Kh.
ON THE MOUNTAIN-VALLEY AIR CIRCULATION (O Gorno-Dolinnoi Tsirkulyatsii). [Dec 61] 1p. PL-480 Agr.
Order from OTS $0.50 60-21889

Trans. of mono. Vsesoyuznyi Geograficheskii S"ezd (no. 2) [held at] Leningrad, 1948. Trudy, p. 211-212.

DESCRIPTORS: *Mountains, Earth, Surface area, *Air, *Terrain, *Wind, Climatic factors, Meteorological balloons, Temperature, Height finding, Radiosondes, Velocity, Distribution, Weather stations, High temperature research, *Motion, Numerical analysis, Theory, Agriculture, Trees, Forestry.

Obukhov, A. D.
MAXIMUM COEFFICIENTS OF FLOODWATER RUNOFF FROM SMALL CATCHMENT AREAS AND PARAMETERS OF THEIR VARIABILITY IN THE CONDITIONS OF THE KRASNODAR KRAI (Maksimal'nye Moduli Pavodkovogo Stoka s Malykh Vodosborov i Parametry ikh Izmenchivosti v Usloviyakh Krasnodarskogo Kraya). [Dec 61] 5p. PL-480 Agr.
Order from OTS $0.50 60-21903

Trans. of Meteorologiya i Gidrologiya (USSR) 1958, no. 11, p. 31-35.

DESCRIPTORS: *Floods, *Water, Water supplies, Dams, *Snow, Melting, *Mathematical analysis, *Hydrology, *Precipitation, Configuration, Climatic factors, Meteorological data, Evaporation, Mountains, Surface area, Zone melting, Safety, Mathematical prediction, Equations, Curve fitting, Weather stations, Errors, *Drainage, Inland water ways, Ice.

Shamrai, I. A. and Sorochinskaya, V. I.
MINERALOGY AND CONDITIONS OF FORMATION OF DARK-GREEN IRON ORES IN KERCH' [Mineralogiya i Usloviya Formirovaniya Kerchenskikh Zheleznykh Temnozelenykh Rud]. 21 Dec 60, 7p. 12 refs.
Order from OTS or SLA $1.10 62-13281

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1958, v. 120, no. 4, p. 875[-878].
Another trans. is available from CB $5.00.

DESCRIPTORS: Geology, *Iron, *Ores, Minerals, Deposits, Surfaces, Drilling machines, Colors, Oxidation, *Geophysical prospecting.

Climatology and Meteorology

Morachevskii, V. G. and Nikandrov, V. Ya.
EFFECTIVENESS OF CO_2 PARTICLES AND AgI SMOKE FOR DISPERSING SUPERCOOLED LOW CLOUDS AND FOGS (Effektivnost' Chastits CO_2 i Dyma AgI dlya Rasseivaniya Pereokhlazhdennykh Oblakov i Tumanov) tr. by David Kraus. Apr 61 [16]p. 6 refs. AmMetSoc-T-R-355+; AD-264 576.
Order from OTS or SLA $1.60 61-28824

Trans. of Arkticheskii i Antarkticheskii Nauchno-Issledovatel'skii Institut. Trudy (USSR) 1959, v. 228, no. 1, p. 135-145.
Another trans. is available from ATS $12.95 as ATS-21M41R [1960] 13p.

DESCRIPTORS: *Aerosols, *Carbon dioxide, Solidified gases, Particles, Silver compounds, Iodides, Smokes, Smoke generators, Meteorology, *Artificial precipitation, Clouds, Fog, Arctic regions.

Twenty-five research flights were made over the Arctic in order to solve the methodological problems of using silver iodide and dry ice for cloud and fog modification, primarily to determine the optimum amount of the agent to be used under specific conditions (temperature at the modification level, vertical cloud thickness and liquid water content of the cloud) (Author)

Vapnyar, D. U. and Pokudov, V. V.
METEOROLOGY AND HYDROLOGY WORK IN THE USSR: ON THE PROJECT FOR IMPROVING THE CLIMATE OF PRIMORSKII KRAI [AND] WORK OF SCIENTIFIC RESEARCH INSTITUTIONS OF THE HYDROMETEOROLOGICAL SERVICE IN 1960. 24 July 61 [18]p. 22 refs. JPRS: 8622.
Order from OTS or SLA $1.60 61-27287

Trans. of Meteorologiya i Gidrologiya (USSR) 1961, no. 3, p. 42-45 and 56-60.

DESCRIPTORS: *Meteorology, *Climate, *Hydrology, *Sea of Japan, Documentation, Water, Geography.

The first paper (by Vapnyar and Pokudov) examines the proposal of N. M. Budtolayev (Meteorologiya i Gidrologiya 1961: no. 2, 49-52; available in translation from OTS $0.50 as 61-21544) for improving the climate of Primor'ye by blocking Nevel'skiy Strait in such a way that the tidal current would be let through in only one direction and an artificial discharge of water would be created from the Sea of Japan into the Sea of Okhotsk through the strait. It is shown that such a construction would have a negligible effect on the climate. The second (unsigned) paper is a bibliographical description of 17 publications of the A. I. Voyeykov Main Geophysical Observatory.

Geology

GEOLOGICAL STRUCTURE OF SECOND BAKU PLATFORM REGIONS IN TERMS OF REGIONAL GEOPHYSICAL EXPLORATION, tr. by A. Philips. June 61 [7]p. ACIC TC-273.
Order from OTS or SLA $1.10 61-28848

Trans. of Vsesoyuznyi Neftyanoi Nauchno-Issledovatel'skii Geologo-Razvedochnyi Institut. Trudy [Novaya Seriya] (USSR) 1956, no. 100, p. 263-266.

DESCRIPTORS: *Geology, *Geophysical prospecting, Terrestrial magnetism, *Gravity anomalies, Maps.

Two schematized composite regional maps are put as a basis for geological interpretation of result in geophysical explorations: gravity anomalies (g^a) and anomalies of geomagnetic field (z^a) vertical components. (Author)

Ballakh, L. Ya.
EXPERIMENT WITH SEISMIC EXPLORATION IN THE DIRECT SEARCH FOR OIL AND GAS DEPOSITS. [1961] 4p.
Order from ATS $6.50 ATS-36N55R

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1961, v. 137, no. 5, p. 1174-1176.

DESCRIPTORS: *Geophysical prospecting, *Petroleum, *Natural gas, Deposits, *Seismic waves.

Baron, V. V. and Savitskii, E. M.
PROPERTIES OF VANADIUM, COLUMBIUM AND THEIR ALLOYS, tr. by J. Woroncow. 20 Sep 60, 17p. 16 refs.
Order from OTS or SLA $1.60 AEC-tr-4326

Trans. from mono. [Redkie Metally i Splavy] (Rare Metals and Their Alloys) Moscow, 1960, chap. 3, sect. 6.

DESCRIPTORS: *Vanadium, *Vanadium alloys, *Niobium, *Niobium alloys, Machining, Heat treatment, Rare earth elements, Metals, Alloys, Microstructure, Mechanical properties, Metallurgical analysis

An investigation was performed on microstructure and properties of carbothermal vanadium with different degrees of purity and vanadium alloyed with molybdenum and chromium. Effect of carbon, nitrogen, and oxygen admixtures on the mechanical properties have been studied. Structure and properties of vanadium-chromium alloys are discussed. In the columbium alloy system, an investigation has been performed on the recrystallization of columbium and the effect of alloying additions of boron, silicon, vanadium, titanium, chromium, zirconium, molybdenum, tantalum, tungsten, lanthanum, and misch metal (45% cerium, 30% lanthanum, and 25% mixture of other rare earths) on the recrystallization temperature. The effect of these elements on hardness, plasticity and technological properties of columbium in relation to mechanical machining and heat treatment conditions, was studied also. (Translator)

Bulashevich, Yu. P. and Sen'ko-Bulatnyi, I. N.
EXPERIMENTAL VERIFICATION OF THE OPTIMUM CONDITIONS FOR CONTINUOUS ACTIVATION LOGGING. [1961] 4p.
Order from ATS $6.35 ATS-94N53R

Trans. of #Akad[emiya] Nauk SSSR. Izvest[iya]. Ser[iya] Geofiz[icheskaya] 1961, no. 4, p. 541-543.

DESCRIPTORS: *Well logging, Experimental data.

Burtsev, I. B.
RECOVERY OF OIL FROM A POROUS MEDIUM BY WATER FLOODING. [1961] 6p.
Order from ATS $10.50 ATS-80N53R

Trans. of Neftyanoe Khoz[yaistvo] (USSR) 1961, v. 39, no. 3, p. 51-54.

DESCRIPTORS: *Petroleum, Recovery, Water injection.

Grigoryan, N. A.
THE ALLOWABLE RATE OF ANGLE BUILD-UP IN DIRECTIONAL WELLS. [1961] 5p.
Order from ATS $7.00 ATS-06N54R

Trans. of Izvest[iya] Vysshikh Ucheb[nykh] Zaved[enii]. Neft' i Gaz (USSR) 1961, v. 4, no. 4, p. 29-32.

DESCRIPTORS: *Petroleum, Sources, Design.

Gurevich, M. S. and Tolstikhin, N. I.
A CHEMICAL CLASSIFICATION SCHEME FOR GROUND WATERS. [1961] 13p.
Order from ATS $22.60 ATS-05N54R

Trans. of Izvest[iya] Vysshikh Ucheb[nykh] Zaved[enii]. Geol[ogiya] i Razvedka (USSR) 1961, v. 4, no. 1, p. 83-93.

DESCRIPTORS: *Hydrology, Classification, Chemical analysis, Geology.

Kalinin, A. G. and Andreev, M. M.
THE MINIMUM ALLOWABLE RADIUS OF CURVATURE FOR A WELL. [1961] 5p.
Order from ATS $7.35 ATS-47N56R

Trans. of Izvest[iya] Vysshikh Ucheb[nykh] Zavedenii. Geol[ogiya] i Razvedka (USSR) 1961, v. 4, no. 5, p. 97-101.

DESCRIPTORS: *Petroleum, Sources, Design.

Kapelyushnikov, M. A., Zaks, S. L., and Burmistrova, V. F.
INCREASING OIL RECOVERY BY INJECTING HIGH-PRESSURE GAS INTO A PARTIALLY DEPLETED FORMATION. [1961] 20p.
Order from ATS $30.45 ATS-76N55R

Trans. of Akad[emiya] Nauk SSSR. Inst[itut] Nefti. Trudy, 1958, v. 11, p. 209-227.

DESCRIPTORS: *Petroleum, Recovery, Gases, Injection.

Khalevin, N. I. and Barykin, D. D.
A SYSTEM FOR ACOUSTIC INVESTIGATION IN BOREHOLES. [1961] 11p.
Order from ATS $15.25 ATS-64N53R

Trans. of #Akad[emiya] Nauk SSSR. Izvest[iya]. Ser[iya] Geofiz[icheskaya] 1961, no. 1, p. 69-78.

DESCRIPTORS: *Boreholes, Acoustics.

Komardinkina, G. N., Pryakhina, Yu. A., and Konyukhov, I. A.
A STUDY OF FRACTURED RESERVOIRS AND THEIR IMPORTANCE IN THE SEARCH FOR OIL AND GAS IN DAGESTAN. [1961] 10p.
Order from ATS $15.80 ATS-70N55R

Trans. of Razvedka i Okhrana Nedr (USSR) 1961, v. 27, no. 3, p. 17-26.

DESCRIPTORS: *Geophysical prospecting, USSR, Hydraulic reservoirs, Oils, Gases.

Kortsenshtein, V. N.
THE PROBLEM OF THE MAXIMUM CONCENTRATION OF DISSOLVED HYDROCARBONS IN THE GROUND WATERS OF CRETACEOUS HORIZONS OF CIS-CAUCASIS IN CONNECTION WITH THE EVALUATION OF PROSPECTS OF OIL AND GAS PRESENCE IN MESOZOIC DEPOSITS. [1961] 4p.
Order from ATS $7.50 ATS-35N55R

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1961, v. 137, no. 1, p. 162-165.

DESCRIPTORS: *Geophysical prospecting, *Petroleum, Natural gas, Deposits, *Hydrocarbons, Hydrology.

Levshunov, P. A.
DETERMINATION OF THE RELATIVE OIL AND GAS SATURATION OF A FORMATION FROM MUD LOGS. [1961] 4p.
Order from ATS $6.25 ATS-38N55R

Trans. of #Geol[ogiya] Nefti i Gaza (USSR) 1961, v. 5, no. 4, p. 40-43.

DESCRIPTORS: *Geophysical prospecting, Petroleum, Natural gas, *Well logging.

London, E. E., Zor'kin, L. M., and Vasil'ev, V. G.
PRINCIPLES OF EVALUATING GAS-BEARING PROSPECTS FROM THE COMPOSITION AND PRESSURE OF GASES DISSOLVED IN SUBSURFACE WATERS. [1961] 7p.
Order from ATS $13.00 ATS-37N55R

Trans. of #Geol[ogiya] Nefti i Gaza (USSR) 1961, v. 5, no. 3, p. 35-40.

DESCRIPTORS: *Geophysical prospecting, Gases, *Natural gas, Sources, Pressure, Hydrology, Water, Chemical analysis.

Mamedov, G. A.
EXPERIMENTAL STUDY OF OIL RECOVERY UNDER CONDITIONS OF CROSS-FLOW OF FLUIDS ACROSS THE SEPARATION BOUNDARIES OF A TWO-LAYER FORMATION. [1961] 4p.
Order from ATS $6.85 ATS-40N55R

Trans. of Izvest[iya] Vysshikh Ucheb[nykh] Zavedenii. Neft' i Gaz (USSR) 1961, v. 4, no. 3, p. 43-46.

DESCRIPTORS: *Petroleum, Recovery, Fluid flow, Boundary layer, Separation.

Minskii, N. A. and Saidov, M. N.
THE ORIGIN OF BITUMINOUS MATTER IN INTRUSIVE ROCKS. [1961] 6p.
Order from ATS $10.30 ATS-79N55R

Trans. of #Geol[ogiya] Nefti i Gaza (USSR) 1961, v. 5, no. 5, p. 50-54.

DESCRIPTORS: *Rock, *Bitumens, Sources.

Murav'ev, I. M., Evdokimov, S. E. and others.
AN ANALYSIS OF THE METHODS OF EVALUATING CURVES OF THE CHANGE IN PRESSURE IN OIL WELLS. [1961] 8p.
Order from ATS $10.00 ATS-33N55R

Trans. of Neftyanoe Khoz[yaistvo] (USSR) 1961, v. 39, no. 3, p. 35-40.

DESCRIPTORS: *Petroleum, Sources, Pressure, Determination.

Nazarov, B. and Artamanov, L.
ELECTROMAGNETIC AIR SURVEY. 12 Sep 61 [12]p. JPRS: 8837.
Order from OTS or SLA $1.60 61-28624

Trans. of Grazhdanskaya Aviatsiya (USSR) 1960 [v. 17] no. 6, p. 24-25.

DESCRIPTORS: *Geophysical prospecting, *Aerial reconnaissance, Electromagnetism, Minerals, Geology.

Permyakov, I. G. and Gudok, N. S.
THE DESIRABILITY OF EXPLOITATION OF OIL FIELDS AT HIGH RATES OF OIL PRODUCTION. [1961] 6p.
Order from ATS $12.10 ATS-11N56R

Trans. of Neftyanoe Khoz[yaistvo] (USSR) 1961, v. 39, no. 6, p. 33-38.

DESCRIPTORS: *Petroleum, Sources, Production, Geophysical prospecting.

Ryss, Yu. S., Fokin, A. F., and Shatrov, B. B.
PROSPECTS FOR GEOLOGIC EXPLORATION WITH DIRECT AND LOW-FREQUENCY CURRENTS. [1961] 6p.
Order from ATS $10.00 ATS-63N53R

Trans. of Razvedka i Okhrana Nedr (USSR) 1961, v. 27 no. 1, p. 27-32.

DESCRIPTORS: *Geology, *Geophysical prospecting, Low frequency, Direct current, Electric currents.

Volarovich, M. P.
THE INVESTIGATION OF PHYSIOMECHANICAL ROCK PROPERTIES UNDER HIGH PRESSURES. [1961] 9p.
Order from ATS $13.80 ATS-01N56R

Trans. of Geologiya i Geofizika (USSR) 1961, no. 4, p. 13-21.

DESCRIPTORS: *Rock, Pressure, Physical properties, Mechanical properties.

Zhigach, K. F., Adel, I. B., and Gorodnov, V. D.
THE EFFECT OF TEMPERATURE ON THE SWELLING PROPERTIES OF ARGILLACEOUS ROCKS. [1961] 7p.
Order from ATS $9.50 ATS-80N55R

Trans. of Izvest[iya] Vysshikh Ucheb[nykh] Zavedenii. Neft' i Gaz (USSR) 1961, v. 4, no. 5, p. 23-29.

DESCRIPTORS: *Rock, Physical properties, Temperature.

Zhlobinskii, B. A.
EFFECT OF THE STRUCTURE, TEXTURE AND MINERALOGICAL COMPOSITION OF CLAY-CARBONATE ROCKS ON THEIR FATIGUE STRENGTH IN DYNAMIC INDENTATION. [1961] 5p.
Order from ATS $7.20 ATS-73N55R

Trans. of Izvest[iya] Vysshikh Ucheb[nykh] Zavedenii. Neft' i Gaz (USSR) 1961, v. 4, no. 4, p. 33-37.

DESCRIPTORS: Clays, Carbonates, *Rock, Mechanical properties, Geology, Fatigue (mechanics).

Oceanography

Alekseev, N. N.
THE CRUISE OF THE ICEBREAKER FEDOR LITKE IN THE OKHOTSK SEA IN WINTER 1931-32 (O Reise Ledoreza Fedor Litke v Okhotskom More Zimoi 1931-32) tr. by M. Slessers. 1961 [12]p. HO Trans-85.
Order from OTS or SLA $1.60 61-27996

Trans. of mono. Issledovaniya Morei SSSR (Investigation of Seas in USSR) 22d ed, Leningrad, 1935 [p. 36-39].

DESCRIPTORS: *Icebreakers, *Okhotsk Sea, Ice, Climate, *Oceanographical data.

The winter cruise of the icebreaker "F. Litke" in the Okhotsk Sea in 1931/32 is described with an outline of the existing ice conditions, climatological and oceanographical data, all based on a preliminary analysis of the observational data collected during the cruise.

Uralov, N. S.
THE INFLUENCE OF THE NORDKAPP (NORTH CAPE) CURRENT ON THE ICINESS OF THE BARENTS SEA (O Vliyanii Nordkapskogo Techeniya na Ledovitost' Barentseva Morya) tr. by M. Slessers. 1961 [51]p. 19 refs. HO Trans-102, no. 2.
Order from OTS or SLA $5.60 61-28001

Trans. of Gosudarstvennyi Okeanograficheskii Institut. Trudy(USSR) 1959, v. 37[49] p. 14-33.

DESCRIPTORS: *Ocean currents, Atlantic Ocean, *North Cape, Temperature, Salinity, *Barents Sea, Ice.

Investigations of other authors, and multiannual observations on the temperature and salinity of water of the Nordkapp Current indicate that the main causes for changes in the heat content of the water are the cooling of the sea in the autumn and winter months and the heat advection by the current flowing from the Norwegian Sea. Assuming that the iciness of the Barents Sea in the spring months is to a degree dependent on the heat

loss of the sea and on the heat content of the Nordkapp Current, we found the relation among the three elements. The air temperature at Barentsburg in the winter was assumed to be the indicator of heat loss by the sea, but the temperature maximum of the active water layer at the Kola Meridian, on the condition that the mean current speed equals 3.6 cm/sec (the speed was computed by means of dynamic processing of multiannual observations at the Kola Meridian), was assumed to be the indicator of heat content in the Barents Sea. The final correlation coefficient for the relation appeared to equal 0.82. On the basis of the derived equation it was found that a 10% of change in the iciness corresponded to 1° change in the temperature of the active water layer. (Author)

Watanabe, Nobuo.
ON THE MECHANISM OF VARIATION IN WATER TEMPERATURE AND CHLORINITY OF UPPER LAYER IN THE SEAS SOUTHWEST OFF KYUSHU AND AROUND NANSEI-SHOTO, tr. by Grace Y. Beard. 22 July 59, 13p. (18 figs. omitted) 7 refs.
Order from OTS or SLA $1.60 59-19340

Trans. of [Tokai-ku Suisan Kenkyusho Kenkyu Kokoku] (Japan) 1958, no. 21, p. 15-24 (Tokai Regional Fisheries Research Lab. Contributions no. 75).

DESCRIPTORS: *Sea water, *Japan, Temperature, Chlorine, Determination, Atmosphere, Heat transfer, Evaporation, Precipitation, Oceanography

Physics of the Atmosphere

INTERNATIONAL GEOPHYSICAL YEAR INFORMATION BULLETIN, 1959, NO. 7 [SELECTED TRANSLATIONS]. Nov 60, 50p. NASA Technical trans. F-50; AD-246 794.
Order from OTS $1.50 61-11136

Trans. of Mezhdunarodnyi Geofizicheskii God. Informatsionnyi Byulleten' (USSR) 1959, no. 7 [p. 42-45 and 68-102].

DESCRIPTORS: *Geophysics, Reports, *Clouds, *Atmosphere, *Wind.

Contents:
#The dependence of the frequency of appearance of noctilucent clouds upon the date and the geographical latitude, by V. V. Sharonov
#On the control of permanency of airglow transparency, by L. M. Fishkova
#A study of movements (of winds) in the F2 layer by the phase method, taking into account the anisotropy of the form and the variability of heterogeneities, by V. D. Gusev and S. F. Mirkotan
Foreign methods of observations; geophysical research carried out with rockets and artificial earth satellites in the United States in accordance with the program of the International Geophysical Year, by M. G. Kroshkin.
#Another translation available from OTS in 60-11225, JPRS: 2176-N, $2.25, 2 Feb 60, 81p.

Dubentsov, V. P.
AIR CURRENTS IN THE STRATOSPHERE (Vozdushnye Techeniya v Stratosfere) tr. by Burton J. Hobson. Jan 61 [16]p. 5 refs. AmMetSoc-T-R-345+ ; AD-264 574.
Order from OTS or SLA $1.60 61-28822

Trans. of Meteorologiya i Gidrologiya (USSR) 1959, no. 11, p. 3-15.
Another trans. is available from OTS $0.50 as 60-11517, JPRS-2470, 14 Apr 60, 15p.

DESCRIPTORS: *Stratosphere, *Wind, Corrections, Barometric pressure, Temperature, *Meteorological charts, Temperature charts, Northern hemisphere, Atmospheric sounding, Radiosondes.

For abstract see Technical Translations 3: 711, 1960.

Lavrov, V. S.
RESULTS OF ELECTROMETRIC INVESTIGATIONS OF THE INFLUENCE OF SHELTER BELTS ON THE VARIATION OF AIR TEMPERATURE AND RELATIVE HUMIDITY NEAR THE GROUND (Rezul'taty Elektrometricheskikh Issledovanii Vliyaniya Polezashchitnykh Lesonasazhdenii na Izmenenie Rezhima Temperatury i Vlazhnosti Vozdushnogo Potoka u Poverkhnosti Zemli). [Dec 61] 11p. 4 refs. PL-480 Agr.
Order from OTS $0.50 60-21895

Trans. of mono. Sukhovei, Ikh Proiskhozhdenie i Bor'ba s Nimi, Moscow, 1957, p. 322-331.

DESCRIPTORS: *Particles, *Air, *Atmosphere, Ion sources, Humidity, Temperature, Wind, Velocity, *Ions, *Counting methods, Contamination, Quantitative analysis, Electrometers, Electronic counters.
The dust content in the air was measured at distances of 150 m eastward and westward of a shelter belt in the Sal'sk Steppes and the ion spectrum (i.e., the simultaneous variation of the light, heavy and medium ions) was recorded. The light ions were also counted simultaneously in the shelter belt and at distances of 100 m to the east and to the west of it. Ion counters were 1.5 m above the ground. More ions were counted to the east of the shelter belt (where the underlying surface was black fallow) than to the west (where the surface was a millet field). Light-ion density was greatest between 0400 to 0700 hrs and was smallest between 1300 and 1600 hrs. Heavy-ion density varied in the opposite manner. Light-ion density was always smallest immediately after a rain. Light-ion density was in inverse relationship with relative humidity, dust content and wind velocity, and in direct relationship with temperature. Highest average humidity was observed to the west of the shelter belt during a westerly air current. One cause of this appears to be the green underlying surface.

Lugeon, Jean.
THE NEW METHOD OF VERTICAL AND QUASI-HORIZONTAL ELECTROMAGNETIC PROBING OF THE ATMOSPHERE (La Nouvelle Méthode de Sondage Électromagnétique Vertical et Quasi-Horizontal de l'Atmosphère) tr. by Frank E. E. Germann. Mar 59 [23]p. 14 refs.
Order from OTS or SLA $2.60 59-14724

Trans. of Archives des Sciences Physiques et Naturelles (Switzerland) 1929, ser. 5, v. 11, Sep-Oct, p. 239-259.

DESCRIPTORS: *Atmosphere, *Microwave probes, *Electromagnetic fields, Electromagnetic waves, Propagation, Photoelectric effect, Atmospheric sounding

ENGINEERING

Borecki, Marcin and Bilinski, Alfred.
INVESTIGATIONS INTO ROCK PRESSURE IN UPPER SILESIAN COLLIERIES (Badania Cisnien Gorotworu w Kopalniach Gornoslaskich) tr. by G. Picek. [Nov 61] [20]p. 6 refs. PL-480 Int.
Order from OTS $0.50 60-21378

Trans. of Przeglad Gorniczy (Poland) 1957 [v. 13] no. 12, p. 594-601.

DESCRIPTORS: *Rock, Pressure, *Mining engineering, *Coal, Poland.

Gaborit, J.
THE ADJUSTABLE-PITCH PROPELLER ON MERCHANT SHIPS (l'Hélice à Pas Règlable à Bord des Navires Marchands) tr. by F. J. Caradec. Feb 59, 22p. 1 ref. Bureau of Ships Trans. 676; FJC-1.
Order from OTS or SLA $2.60 59-16313

Trans. from Navires, Ports et Chantiers (France) 1957, Mar.

DESCRIPTORS: *Merchant vessels, Ships, *Adjustable pitch propellers, Operation, Tests

Jung, R.
THE PRESSURE DROP IN THE INLET ZONE OF PNEUMATIC TRANSPORT SYSTEMS. Sep 61.
Order from BISI £5 10s BISI-2246

Trans. of Forschung auf dem Gebiete des Ingenieurwesens (West Germany) 1958, v. 24, no. 2, p. 50-58.

DESCRIPTORS: *Pneumatic systems, *Particles, *Pressure, Transportation, Pipes.

Kogan, D. I.
A ROCK-CRUSHING TOOL FOR ROTARY-PERCUSSION DRILLING WITH A HYDRAULIC HAMMER. [1961] 6p.
Order from ATS $11.20 ATS-62N53R

Trans. of Razvedka i Okhrana Nedr (USSR) 1961, v. 27, no. 1, p. 18-23.

DESCRIPTORS: *Well drilling, *Hammers, *Hydraulic systems, Rock, *Ball mills.

Mityushkin, I. S. and Chaiko, Ya. M.
EXPERIMENTAL DRILLING WITH DOWN-HOLE HYDRAULIC PERCUSSION (IMPACT) DEVICES. [1961] 5p.
Order from ATS $8.75 ATS-78N55R

Trans. of Razvedka i Okhrana Nedr (USSR) 1961, v. 27, no. 5, p. 21-25.

DESCRIPTORS: *Well drilling, Hammers, *Hydraulic systems, Tests.

Pchelintseva, G. M., ed.
SANITARY REGULATIONS FOR WORK WITH RADIOACTIVE SUBSTANCES AND SOURCES OF IONIZING RADIATIONS. Oct 61, 114p.
Order from OTS $2.25 AEC-tr-4612

Trans. of mono. Sanitarnye Pravila Raboty s Radioaktivnymi Veshchestvami i Istochnikami Ioniziruyushchikh Izluchenii, Moscow, 1960 [119]p.

DESCRIPTORS: *Sanitary engineering, Public health, Laboratories, *Radiochemistry laboratories, Radioactive isotopes, Radioactive waste, *Transportation, *Storage, *Ventilation, *Water supplies, *Sewage, Liquids, *Cleaning, *Decontamination, Radiation effects, Radiation tolerance, Radiation counters, Dosimeters, Radioactivation analysis, Diseases, *Physical fitness, *Radiological contamination, Radiological physics, Test methods, *Personnel, Labor, Industrial equipment, *Industrial training, Records, Reports.

Contents:
General principles
Requirements for the location of laboratories, institutions, and enterprises designed for work using radioactive substances
Obtaining, registering, storing and transporting radioactive substances
Requirements in work with closed sources
Requirements during work with radioactive substances in the open form
Requirements for ventilation and heating
Requirements for water supply and sewerage
Cleaning and deactivation of rooms and equipment and the elimination of accidental contaminations
Requirements for the collection, removal and interment of solid and highly active liquid waste products
Measures of individual protection and personal hygiene
Radiometric and dosimetric control
Appendices 1-15
Basic concepts, definitions and terminology
Maximum permissible levels of ionizing radiations (MPL--1960)
Protection from gamma rays
Maximum path of beta particles
Gamma-equivalence of certain isotopes, t (without initial filter)
List of industries and professions whose workers are liable to preliminary (upon entering work) and periodic medical examinations
Enumeration of illnesses and other contraindications preventing acceptance for work and work with radioactive substances and sources of ionizing radiations
Methods of deactivating premises, laboratory equipment and hands

Recommended complexes of means of individual protection
Form of the permit for an organization in which work using radioactive substances in the closed form is permitted
Form of the permit for an organization in which work with radioactive substances in the open form is permitted
Receipt-consumption journal for keeping stock of radioactive substances
Requisition
Statement
Radiation danger sign
Supplement: Determination of contamination of surfaces with radioactive substances by the smear method.

Sharapov, V. V.
HYDRAULIC MINING AS ONE OF THE MOST IMPORTANT MEANS OF FULFILLING THE OBJECTIVES OF THE CURRENT SEVEN-YEAR PLAN. [1961] [10]p. [NCB] Trans. A. 1816/SEH; [DSIR LLU] M 3136.
Order from OTS or SLA $1.10 61-27529

Trans. of Ugol' (USSR) 1959, v. 34, no. 3, p. 23-29.

DESCRIPTORS: Coal, *Mining engineering, *Hydraulic systems, USSR.

Aeronautical Engineering

Shekunov, E. P., Boitsov, V. V. and others.
ASSEMBLY AND FITTING OPERATIONS. PT. I: CHAPS. 4-12 [SELECTED PARTS]. 15 Sep 61 [287]p. MCL-819/1+2, pt. 1; AD-264 616.
Order from OTS or SLA $18.00 61-28819-1

Unedited rough draft trans. of excerpts from mono. Sborochnye i Montazhye Raboty, Moscow, 1959, chaps. 4-12.

DESCRIPTORS: *Welding, Rivited joints, *Joints, *Industrial equipment, Production, Industrial research, Processing, *Machine tool industry, Operation, Disconnect fittings, *Soldering.

Contents:
Methods and means of executing joints used during assembling
Technological processes of riveted joints
Technology of soldering
Welding technology
Technology of glued joints
Detachable joints and their technology
Typical assembling and erection processes
Assembly of assemblies
Assembly of panels
Assembly of sections
Assembly of aggregates.

Shekunov, E. P., Boitsov, V. V. and others.
ASSEMBLY AND FITTING OPERATIONS. PT. II: CHAPS. 13-17, SELECTED PARTS [AND TABLE OF CONTENTS]. 15 Sep 61 [311]p. 12 refs. MCL-819/1+2, pt. 2; AD-264 617.
Order from OTS or SLA $19.75 61-28819-2

Unedited rough draft trans. of excerpts from mono. [Sborochnye i Montazhye Raboty, Moscow, 1959] chaps. 13-17.

DESCRIPTORS: *Aircraft industry, Technological intelligence, Industrial research, Flight testing, Aircraft, Production, Construction, *Jigs, Aircraft equipment.

Contents:
Technological processes of general aircraft assembly and preparation for flight test
General assembly of aircrafts
Technological processes for preparing aircrafts to flight tests and delivery
Technological preparation of assembly of aggregates for aircraft construction
Fundamental problems of the technological preparation of assembly operations
Planning of assembly contrivances
Manufacture and operation of assembly jigs.

Chemical Engineering

INTRODUCING MATHEMATICAL METHODS IN CHEMICAL PRODUCTION. 17 Nov 61 [39]p. (1 photo omitted). JPRS: 11042.
Order from OTS or SLA $3.60 62-13417

Trans. from Ekonomicheskaya Gazeta (USSR) 1961, no. 5, p. 24-26.

DESCRIPTORS: *Chemical engineering, *Applied mathematics, Mathematics, *Digital computers, Computers, *Cybernetics, Control systems, Automation.

Contents:
For creative cooperation, by L. Kostandov
Cybernetics and chemistry, by A. Berg
We need machines, by N. Festa
Economists cannot stand aside, by V. Dobkin
Substitute acting for waiting, by E. Fesenko
In the position of a step-child, by V. Ryazanov
Editorial note.

THE MECHANIZATION AND AUTOMATION OF PRODUCTION, 1961, NO. 3: SELECTED ARTICLES. 3 Nov 61 [44]p. 4 refs. JPRS: 10869.
Order from OTS or SLA $4.60 62-13420

Trans. of Mekhanizatsiya i Avtomatizatsiya Proizvodstva (USSR) 1961 [v. 15] no. 3, p. 4-10 and 17-20.

DESCRIPTORS: *Chemical industry, *Automation, Production, Control systems, Applied mechanics, *Resins, *Phenolic resins, Plastics, Polymers, *Urea-formaldehyde resins, Phenols.

Contents:
The automation of the chemical industries, by N. N. Elshin
Certain problems of automatic control and regulation in the production of phenol-formaldehyde resins, by N. Ya. Parlashkevich and others.

Baier, Ernst and Hausmann, Peter.
STUDIES ON GLASS SURFACES USING RADIOACTIVE PHOSPHORUS (Untersuchungen von Glasoberflächen mit Radioaktivem Phosphor). [1961] [21]p. (foreign text included) 7 refs.
Order from SLA $2.60 61-20843

Trans. of Glastechn[ische] Ber[ichte] (West Germany) 1961, v. 34, no. 3, p. 146-152.

DESCRIPTORS: *Phosphorus, *Optical glass, Surfaces, Adsorption, Radiation counters, Radiography, *Radioactive isotopes, Adsorbents, *Phosphate glass, Radioactivity, Physical chemistry, *Radiation effects.

It is detected by radiographs and by measurements with radiation counters that optical glasses adsorb radioactive orthophosphates in sharply localized centers. The phosphate adsorption is related to the composition of the glasses. The morphological character of the glass surface has no influence on the amount of material adsorbed and on the geometrical distribution of the centers of adsorption. It is surmized that the activity maxima in the radiographs are pictures of latent centers of disintegration. (Author)

Cherkasskii, A. A.
SCIENTIFIC-TECHNICAL CONFERENCE ON MODERN METHODS OF ANALYTIC CONTROL IN THE CHEMICAL INDUSTRY. 11 Oct 61 [8]p. JPRS: 10505.
Order from OTS or SLA $1.10 61-28788

Trans. of Vsesoyuznoe Khimicheskoe Obshchestvo. Zhurnal (USSR) 1961, v. 6, no. 2, p. 224-226.

DESCRIPTORS: Conferences, *Scientific research, *Industrial research, Manufacturing methods, *Quality control, Chemical analysis, *Chemical industry.

Dahlen, Allan [and Bengtsson, Erik].
DIPHENYL, ITS CHARACTERISTICS, EMPLOYMENT AND PRODUCTION (Diphenyl, Dets Egendomligheter, Anvandning och Produktion). [1961].
Order from AC $8.50

Trans. of [Iva (Sweden) 1948, v. 19] p. 134-139.
Another trans. is available from SLA mi$1.80, ph$1.80, as 59-10922 [1958] 9p.

DESCRIPTORS: *Diphenyl, Physical properties, Production.

Discussion of interesting fields of employment for diphenyl, its characteristics, and experiences from the production of diphenyl. (AC abstract) (See also 59-10922)

Echterhoff, Heinrich.
INVESTIGATIONS INTO THE INFLUENCE OF WATER CONTENT, SIZE GRADING AND OIL ADDITION ON THE BULK DENSITY OF COKING COAL. [1959] [27]p. 1 ref.
Order from SLA $2.60 61-20622

Trans. of Glückauf (West Germany) 1958, v. 94, no. 3/4, p. 110-121.
Another trans. is available from BISI £7 10s as BISI-1237, 13 Mar 59.

DESCRIPTORS: *Coal, Processing, Physical properties, *Coke, Moisture content, Oils, Additives, Density, Ovens, Tests, Films, Metallurgy, Industrial research.

Ihnatowicz, Maria and Roga, Blazej.
RECOVERY OF PITCH WITH VERY LOW ASH AND BORON CONTENT (Otrzymywanie Paku o Bardzo Niskiej Zawartosci Popiolu i Boru) tr. by D. Brzostowska. [Nov 61] [16]p. 4 refs. PL-480 Int.
Order from OTS $0.50 60-21269

Trans. of Glowny Instytut Gornictwa. [Komunikat] (Poland) 1958, no. 213, p. 3-11.

DESCRIPTORS: Recovery, *Pitch, *Ash, *Boron, Coke, Ovens, Refineries, Chemical analysis, Benzenes.

Pure pitch with an ash content below 0.03% and a boron content below 0.5 γ/g can be recovered from typical coke-oven pitch by preliminary elimination of ash from the pitch and additional chemical refining of benzene solutions of pitch from boron. Preliminary elimination of ash from coke-oven pitch may be achieved (1) by dissolving coke-oven pitch in a suitable quantity of benzene at its boiling temperature, and filtering off the benzene-insoluble matter and ash components from the cooled benzene solution; (2) by dissolving coke-oven pitch in a suitable quantity of benzene at its boiling temperature, settling at room or elevated temperature, decanting, and centrifuging off matter benzene-insoluble and ash components from the pitch solutions; and (3) by twofold distillation of pitch: first distillation of coke-oven pitch till coke is obtained, in order to obtain the maximum quantity of ash-free distillate; and secondary distillation of the distillate obtained, in the manner described, until pitch is recovered as a distillation residue. Prior to chemical refining, this pitch should be dissolved in benzene. The elimination of boron remaining in benzene solutions of pitch after a preliminary separation of ash can best be effected by washing them with distilled water to which mannite has been added (a 0.5% solution of mannite is sufficient), or in a 10% solution of NaOH and distilled water.

Kitano, Takeo and others.
METHOD FOR THE MANUFACTURE OF OXI PHOSPHORUS CHLORIDE. [1961] 4p.
Order from AC $4.00

Trans. of [published] Japanese patent 4351(50), by Toyama Kagaku Kogyo Kabushiki Kaisha.

DESCRIPTORS: *Oxygen, *Phosphorus compounds, *Chlorides, Manufacturing methods, Economics.

The invention relates to a method for the manufacture of oxi phosphorus chloride, comprising the ignition

and reaction of the mixture of phosphorus trichloride or a substance capable of forming phosphorus trichloride or containing it and oxygen or the air in a gaseous state at the ratio of 2 mols of phosphorus trichloride to one mol of oxygen. The purpose of the invention lies in manufacturing at a high yield and at a low cost a large quantity of oxi phosphorus chloride by means of a small apparatus and by a simple operation. (AC abstract)

Larin, A. Ya.
LOW TEMPERATURE DECOMPOSITION OF GAS-OIL IN THE PRESENCE OF AN ALUMINOSILICATE CATALYST. [1961] [2]p. 4 refs.
Order from OTS or SLA $1.10 61-20174

Reprint of [Akademiya Nauk SSSR]. Comptes Rendus (Doklady) de l'Academie des Sciences de l'U. R. S. S., 1946, v. 52, p. 239-240.

DESCRIPTORS: Decomposition, Temperature, *Hydrocarbons, *Gasoline, Fuels, *Gases, *Oils, *Aluminum compounds, Silicates, *Catalysts.

Pashaev, T. G.
NAPHTHALAN PETROLEUM. [1961] 4p.
Order from ATS $8.45 ATS-99N53R

Trans. of Neftyanik (USSR) 1961, v. 6, no. 4, p. 28-29.

DESCRIPTORS: *Naphthalenes, *Petroleum.

Reerink, Wilhelm, Echterhoff, Heinrich, and Beck, Kurt-Gunther.
COKING EXPERIMENTS ON SEMI-COMMERCIAL SCALE. [1959] [18]p. 6 refs.
Order from SLA $1.60 61-20604

Trans. of Glückauf (West Germany) 1958, v. 94, no. 3/4, p. 102-110.
Another trans. is available from BISI £5 15s as BISI-1236, 13 Mar 59.

DESCRIPTORS: *Coal, Processing, Industrial production, *Coke.

Smirnov, M. N. and Vydrevich, E. Z.
THE IMPROVEMENT OF THE HYDROCHEMICAL ALKALI METHOD OF PROCESSING NEPHELINE ROCKS TO OBTAIN ALUMINA (Usovershenstvovanie Gidrokhimicheskogo Shchelochnogo Sposoba Pererabotki Nefelinovykh Porod na Glinozem). [Dec 61] 8p 4 refs. PL-480 Int.
Order from OTS $0.50 60-51138

Trans. of Tsvetnye Metally (USSR) 1959, v. 32 [no.9] p. 39-44.

DESCRIPTORS: *Aluminum compounds, *Oxides, *Nepheline, Rock, Processing, Metallurgical laboratories, Minerals, Silicates, Molecular structure, Manufacturing methods, Regeneration, Sterilizers

Alkali regeneration from autoclave sludge upon production of alumina from alkali aluminosilicate rocks according to the Ponomarev-Sazhin method can be markedly improved by the change of the autoclave process to a nonautoclave one, the elimination of the use of lime and the increase of the concentration of the resulting alkaline solutions up to 70 g/l Na_2O. The optimum conditions of alkali regeneration from the autoclave sludge were determined: temperature 100°C, duration 10 hours, concentration of the starting alkaline solution used for the regeneration 60 g/l Na_2O, liquid to solid ratio 6:1. It was shown that the separation of sludge from solution after the regeneration, can be achieved by filtration. According to the laboratory data, the filtration rate is 17-18 m^3/m^2 hr of solution and about 3 ton/m^2 hr of sludge using a cake thickness of 23-25 mm. (Author)

Warmuzinski, Janusz.
EFFECT OF HYDROCHLORIC ACID ON THE YIELD AND CERTAIN PROPERTIES OF BROWN COAL BITUMENS (Wplyw Kwasu Solnego na Wydajnosc i Niektore Wlasnosci Bituminow z Wegla Brunatnego) tr. by Jan Burchart. [Nov 61] [10]p. 11 refs. PL-480 Int.
Order from OTS $0.50 60-21369

Trans. of Glowny Instytut Gornictwa. [Komunikat] (Poland) 1952, no. 116, 9p.

DESCRIPTORS: *Coal, *Bitumens, Properties, *Hydrochloric acid, Solvent extraction, Hydrolysis, Waxes.

Bitumens obtained by extraction of brown coals previously treated with hydrochloric acid should be regarded from the point of view of industrial utilization. Hydrolysis by hydrochloric acid causes an increase in the yield of bitumens; however, the bitumens obtained cannot be identified with raw montan wax because of the lack of softening point, a characteristic feature of waxes. (Author)

Weilandt, Bernhard and Kruse, Fritz.
UTILISATION OF SLUDGE FROM GAS SCRUBBERS. Rept. no. 315 of the Blast Furnace Committee of the Verein Deutscher Eisenhüttenleute. [1961] 12p. 16 refs.
Order from SLA $1.60 61-18734

Trans. of Stahl und Eisen (West Germany) 1958, v. 78, no. 23, p. 1657-1662.

DESCRIPTORS: Blast furnaces, *Waste gases, Consumption, Sintering, Zinc, Iron, Towers (Chemistry), Wetting agents.

On account of its high moisture content of 50 to 60%, its high proportion of extremely fine dust and its high zinc content, little use is generally made of the gas sludge recovered from gas scrubbers. Tests were carried out on a sinter pallet to ascertain whether it would be possible to use zinciferous gas sludge by pelletizing and simultaneous dezincing in a sinter plant. Methods for the successful processing of zinciferous gas sludge were found. However the sinter efficiency proved to be extremely sensitive to fluctuations in the moisture content. This necessitates a constant supervision of the moisture content and a strict admixture of water. (Author)

Yakushev, F. N., Gun, R. B., and Chaiko, A. L.
AUTOMATIC CONTROL OF CRUDE OIL DESALTING. [1961] 5p.
Order from ATS $7.10 ATS-51N56R

Trans. of Neftyanik (USSR) 1961, v. 6, no. 8, p. 14-16.

DESCRIPTORS: *Oils, *Petroleum, Desalination, Automatic, Control.

Civil Engineering

Bresser, Ya. R. and Proskurnin, V. P.
ASSEMBLING CRANES. 13 Sep 61 [37]p.
MCL-1050/1 + 2; AD-264 619.
Order from OTS or SLA $3.60 61-28807

Unedited rough draft trans. of mono. Montazh Sbornykh Zhelesobetonnykh Konstruktsii (Erection of Precast Reinforced Concrete Structures) Moscow, 1958, p. 187-213.

DESCRIPTORS: Reinforced concrete, Construction, Structures, *Hoists, *Locomotive cranes, Conveyors, Loading, Girders, Hooks, Statistical analysis.

Janssonius, G. F.
AMSTEL BRIDGE AT AMSTERDAM IN GOVERNMENT HIGHWAY NO. 2 CONSTRUCTED PARTLY WITH PRESTRESSED CONCRETE DECK. [1961] 9p. (2 figs. omitted).
Order from SLA $1.10 61-20233

Trans. of de Ingenieur (Netherlands) 1953, v. 65, no. 19, p. V23-V28.

DESCRIPTORS: *Bridges, Construction, Netherlands, *Concrete, *Roads, Traffic, Transportation.

Laemmlein, Arthur and Wichert, Ulrich.
PRESTRESSED CONCRETE BRIDGE AT BLEIBACH. [1961] 20p.
Order from SLA $1.60 61-18993

Trans. of die Bautechnik (West Germany) 1949, v. 26, no. 10, p. 300-306.

DESCRIPTORS: *Bridges, Construction, *Concrete, Roads, Stresses.

Muzichenko, Yu. M.
THE STABILITY OF ELASTIC WEIGHTY PLATES (Stiikist' Pruzhnikh Vagomikh Plastinok). Jan 60 [13]p.
T. I. L. /T. 4855; [DSIR LLU] M1540; AD-233 323.
Order from OTS or SLA $1.60 61-13584

Trans. of [Mashinostroyeniya Za Rubezhom] (USSR) 1955, no. 1, p. 344-358.

DESCRIPTORS: *Metal plates, Buckling, *Elasticity, Load distribution, Mathematical analysis, Stability, USSR.

Sabljak, R.
ANALYSIS OF STRESSES IN CONCRETE LININGS OF PRESSURE TUNNELS (Rechnerische Spannungsermittlung in Beton-Auskleidungen von Druckstollen) tr. by F. Stenger. Oct 57 [12]p. 1 ref. Trans. no. 343.
Order from OTS or SLA $1.60 59-22390

Trans. of Schweizerische Bauzeitung, 1955, v. 73, no. 14, p. 200-203.

DESCRIPTORS: *Underground structures, Pressure, Materials, Rock, *Concrete, Reinforcing steel, Steel, Stresses, Mathematical analysis.

Soutter, P.
"WORKS OF ART" ON MOTORWAYS. [1961] 12p.
Order from SLA $1.60 61-20213

Trans. from Bulletin Technique de la Suisse Romande, 1958, no. 9.

DESCRIPTORS: *Bridges, Design, Construction, *Roads, Transportation, Economics, Stability,

Vettiger, A.
CAST STONE FACINGS. [1961] 16p.
Order from SLA $1.60 61-20234

Trans. of Betonstein-Zeitung (West Germany) 1952, v. 18, no. 8, p. 289-294.

DESCRIPTORS: Buildings, Construction, Materials, Rock, *Civil engineering, Germany

Wierzbicki, W.
APPLICATION OF THE SEMI-PROBABILISTIC METHOD FOR DETERMINING THE DIMENSIONS OF STEEL STRUCTURES (Application de la Méthode Semi-Probabiliste au Calcul des Dimensions des Constructions en Acier). [1961] [13]p. 3 refs.
Order from SLA $1.60 61-20437

Trans. of Congrés [des] Association Internationale des Ponts et Charpentes (no. 6) 1960. [Proceedings] v. Ib4, p. 129-138.

DESCRIPTORS: Stresses, Mathematical analysis, Plasticity, Safety, Failure (Mechanics), *Structures, Construction, *Buildings, Girders, *Reinforcing steel, *Reinforcing materials, *Foundations (Structures), *Steel, Probability, *Mathematical prediction.

Electrical and Electronic Engineering

AUTOMATIC CONTROL SYSTEMS. 28 Sep 61 [42]p. 22 refs. JPRS: 10251.
Order from OTS or SLA $4.60 61-28558

Trans. of A[kademiya]N[auk] SSSR. O[tdelenie] T[ekhnicheskikh] N[auk]. Izvestiya: Energetika i Avtomatika, 1961, no. 2, p. 85-91 and 106-119.

DESCRIPTORS: Automatic, *Control systems, Synthesis, Stability, Probability, Statistical functions, Determination.

Contents:
Determination of the distribution function of the probabilities in the output of nonlinear automatic control systems, by V. L. Chernetskii
Criteria of absolute invariance for control systems with variable parameters, by A. L. Kukhtenko
Synthesis of discrete automatic systems with limited control action, by L. N. Volgin.

SOVIET INDUSTRIAL DEVELOPMENT: SELECTED TRANSLATIONS ON SOVIET PRECISION EQUIPMENT (3). 14 Aug 61, 25p. JPRS: 9894.
Order from OTS $0.75 61-31584

Trans. of Promyshlennost' Armenii (USSR) 1961 [no. 3] p. 24-28, #39-40; Energetik (USSR) 1961 [v. 9] May, p. 17; Promyshlennaya Energetika (USSR) 1961 [v. 16] no. 5, p. 54, 62-63; and from Pravda, Leningrad (USSR) 1960, 27 Nov; and 20 Dec, p. 4.
#Another trans. is available of p. 39 from OTS or SLA $2.60 in 61-27385, JPRS-9839, 31 July 61 [27]p.

DESCRIPTORS: Electrical engineering, Electronic engineering, *Electrical equipment, *Electronic equipment, USSR, Moisture, Automatic, Measurement Instrumentation, Control systems, Pneumatic servomechanisms, Electronic relays, Relays, Nuclear engineering, Generators, Industry, Automation.

Contents:
Instruments for automatic measurement of moisture content, by D. Oganesyan
#New products from the electrical engineering industry
Problems in conversion to programmed control
New prospecting devices, by I. Denisov
An electric stove every five seconds
The electronic ATS (automatic dial exchange) by N. Zapletin
Automatic maintenance of the water level in a boiler drum by a pneumatic regulator, by Ya. S. Kirshenbaum
Radioactive industrial instruments
The new DGI-200 fixed diesel generator
Plant news.

SOVIET PRECISION EQUIPMENT: SELECTED TRANSLATIONS NO. 6. 14 Aug 61, 48p. 5 refs. JPRS: 9866.
Order from OTS $1.25 61-31582

Trans. of Elektricheskii Stantsii (USSR) 1961 [v. 32, no. 3] p. 2-6; Energetik (USSR) 1961 [v. 9, no. 4] p. 36-39; Avtomatika Telemekhanika i Svyaz' (USSR) 1960 [no. 4] Inside back cover; Promyshlennaya Energetika (USSR) 1961 [v. 16] Apr, p. 54-55; and from Kommunist, Erevan (USSR) 1960, 6 Oct, p. 2; Pravda, Moscow (USSR) 1960, 15 Oct, p. 1; and one unidentified article, n.p., n.d.

DESCRIPTORS: Electrical engineering, Electronic engineering, *Electrical equipment, *Electronic equipment, Industry, USSR, Television equipment, Television, Relays, Electrolytic capacitors, Carbon resistors, Nuclear engineering, Instrumentation, Personnel.

Contents:
Introducing television techniques into power engineering, by V. V. Kulikov
New relays
EM small-scale electrolytic capacitors
Carbon resistors, variable, small-scale, three-dimensional, type SPO
The "elektrokabel" plant and its contribution to the extension of electric facilities in the USSR, by P. N. Gorshkov
Factory power specialist's handbook:
Radioactive industrial instruments [Pt. 2]
Outstanding personnel, perfected technology, by S. Galoyan
We are up to these tasks, by K. Zhamakochyan
People of indomitable energy, by S. Levin
Advanced experience and routine, by S. Berlin and A. Gurevich
Creative enthusiasm, by V. Saakyan

USSR ELECTRIC POWER: SELECTED TRANSLATIONS NO. 8. 31 July 61, 60p. JPRS: 8650.
Order from OTS $1.75 61-31550

Trans. of Teploenergetika (USSR) 1961 [v. 8] no. 1, p. 3-7 and no. 3, p. 91-94; #Elektrichestvo (USSR) 1961, no. 2, p. 1-9 and no. 3, p. 14-17; Zhilishchno-Kommunal'noe Khozyaistvo (USSR) 1961 [v. 11] no. 2, p. 13; Promyshlennaya Energetika (USSR) 1961 [v. 16] no. 3, p. 6-9; mono. Goelro i Sploshnaya Elektrifikatsiya SSSR, Moscow, 1960, p. 24-25; and 24 selected items from Russian newspapers.

DESCRIPTORS: *Electrical engineering, Periodicals, *Electric power production, Electrical industry, Electrical networks, Economics, Direct current, *Transmission lines, Power supplies, Electrical equipment
Contents:
Economic problems in the long-range development of USSR electric power, by S. F. Shershov
The all-union scientific and engineering conference on boiler-auxiliary equipment, by V. I. Trembovlya
Unification of the USSR electric power systems in Europe and Siberia, by V. I. Veits and others
Certain problems concerning the operation of the Stalingrad-Donbass D.C. transmission line, by N. M. Mel'gunov and V. M. Kvyatkovskii
To normalize correctly USSR electric power consumption, by I. P. Bakanov
Definition of total electrification of the USSR, by V. I. Veits
Now it is in our power to connect the southern USSR seas with the Arctic Ocean, by S. Zhuk and G. Russo
The power engineers in Moscow oblast are striving for rational utilization of electric power, by B. Khabarov
Selected short items from various sources on the installation of power equipment

Braucks, F. W.
INVESTIGATION OF THE LONG-FOCUS CATHODE ACCORDING TO STEIGERWALD. [1961] [15]p. (25 figs. omitted) 5 refs.
Order from SLA $1.60 61-18909

Trans. of Optik (West Germany) 1958, v. 15, p. 242-260.

DESCRIPTORS: *Cathodes (Electron tubes), *Electron tubes, Focusing.

The long focus beam system proposed by Steigerwald was systematically investigated. All important dimensions of the system were varied, and the corresponding values of the focusing current, current density, aperture, beam coefficient as well as the diameter of the narrowest cross section of the beam and its distance from the system were partially determined. The position of the focus depends in the first place on the relation between the diameter of the larger focusing diaphragm to the distance of conical electrode from this diaphragm. Furthermore, the increasing of total system dimensions, with the distance between the focus and the electron gun remaining constant, leads to an increase of the aperture and of current density.

Camuzat, M.
THE USE OF CERAMICS FOR MAKING HIGH-POWER HIGH-FREQUENCY TUBES. [1961] [22]p. 9 refs.
Order from SLA $2.60 61-20879

Trans. of Acta Electronica (France) 1960, v. 4, no. 1, p. 59-68.

DESCRIPTORS: *Ceramic materials, High frequency, Aluminum compounds, Oxides, *Klystrons, *Power amplifiers, Seals, Adhesion, Cermets, Metal plastic adhesives, Bonding, Chemical bonds, *Electron tubes, Production.

Gamkrelidze, R. V.
OPTIMAL PROCESSES WITH BOUNDED PHASE COORDINATES. [1961] [74]p. 10 refs.
Order from OTS or SLA $7.60 62-10145

Trans. of Akad[emiya] Nauk SSSR. Izvestiya. Ser[iya] Mat[ematicheskaya] 1960, v. 24, no. 3, p. 315-356. Another trans. is available from OTS or SLA $5.60 as 61-28520, JPRS-4932, 31 Aug 61 [58]p.

DESCRIPTORS: Control, *Control systems, Theory, Calculus of variations

For abstract see Technical Translations 6: 845, 1961.

Gossel, D.
PARAMETRIC AMPLIFIERS. [1961] [36]p. 23 refs.
Order from SLA $3.60 62-10072

Trans. of Elektronische Rundschau (Germany) 1961, v. 15, no. 3, p. 91-95 and no. 4, p. 149-152.

DESCRIPTORS: *Microwave amplifiers, Amplifiers, Microwave equipment, Operation, Frequency modulation, Noise (Radio), Semiconductors, Diodes, Circuits.

The principle of energy input by periodic variation of a circuit parameter (reactance) is explained by means of an electromechanical model. In the electrical case the element appearing instead of the mechanically "pumped" parameter is a nonlinear reactance, preferably the voltage-dependent capacitance of a semiconductor diode operated in the reverse direction. The various types of operation for parametric amplifiers are discussed. The voltage-dependent capacitance of a semiconductor diode operated in the reverse direction is explained by a model of a p-n junction. By means of the appropriate equivalent circuit we calculate the upper frequency limit as a function of the diode path resistance R_s and the fixed capacitance C_o. (Author) (Expanded from a lecture given on February 15, 1960 at the Technical and Scientific Colloquium of the Institute for Radio Engineering in Hamburg)

Grawe, R. and Lindorf, H.
THE NEW MULTIPURPOSE CHOPPER BAR CONTROLLER. Nov 61.
Order from BISI £2 10s BISI-2438

Trans. of AEG Mitt[eilungen] (Germany) 1960, v. 50, Aug/Sep, p. 331-335.

DESCRIPTORS: Electric switches, Junction boxes, Panel boards (Electricity), *Automatic volume control, Switches, Switching circuits, Electronic circuits, Deflection, Thermocouples, *Transmission lines, *Servomechanisms, *Electric machinery, Instrumentation, Electrical equipment, Safety.

Hannakam, L.
THE USE OF ANALOGUE OR DIGITAL COMPUTERS IN SOLVING HEAVY-CURRENT PROBLEMS. III. PROBLEMS OF THE SYNCHRONOUS SALIENT POLE MACHINE [PTS. I AND II]. Sep 61.
Order from BISI £10 BISI-2298

Trans. of de Ingenieur (Netherlands) 1960, v. 72, 29 July, p. E67-E78 and 12 Aug, E79-E94.

DESCRIPTORS: *Electric machinery, Machines, Analog computers, Digital computers, *Computers, Tests.

Khazen, E. M.
DETERMINATION OF PROBABILITY DISTRIBUTION DENSITY FOR RANDOM PROCESSES IN SYSTEMS WITH NONLINEARITIES OF THE PIECEWISE-LINEAR TYPE (Opredelenie Plotnosti Raspredeleniya Veroyatnostei dlya Sluchainykh Protsessov v Sistemakh s Nelineinostyami Kusochno-Lineinogo Tipa). 1 Oct 61 [29]p. 15 refs. JPRS: 10283.
Order from OTS or SLA $2.60 61-28749

Trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya: Energetika i Avtomatika, 1961, no. 3, p. 58-72.

DESCRIPTORS: Automatic, *Control systems, Statistical processes, Probability, Determination, Feedback.

Feedback systems are examined containing linear filters and nonlinear elements with piecewise-linear characteristics and subject to random influences. The

"forcing" random functions are assumed continuous Gaussian or Markovian. The first section gives an account of the theory of continuous Markov random processes and examples showing the relation between Markov and Gaussian processes are examined. Kolmogorov's equations are used to find the probability density of random processes in piecewise-linear systems. The problem of determining the probability density reduces to the solution of a system of Volterra-type linear integral equations of the second kind. A solution of these integral equations in the general case can be reduced (by the method of moments) to the solution of a system of linear algebraic equations. The suggested fundamentally accurate method of determining probability density can be used in practice.

Ohl, G.
MEASURING METHODS AND RESULTS FOR THE STANDARD FREQUENCY BROADCAST OF THE PHYSIKALISCH-TECHNISCHE BUNDESANSTALT OVER TRANSMITTER DCF 77 (Meßmethoden und Ergebnissee für die Normalfrequenzaussendung der Physikalish-Technischen Bundesanstalt über den sender DCF 77) tr. by Aubrey Kempner. 18 Sep 59 [6]p. (4 figs. omitted) 3 refs.
Order from OTS or SLA $1.10 59-22220

Trans. of [NTZ] Nachrichtentechnische Zeitschrift (West Germany) 1959, v. 12, p. 374ff.

DESCRIPTORS: Measurement, *Radio broadcasting, Frequency, Radio stations, Radio transmitters, Radiofrequency, *Radio communication systems, *Radio transmission.

Polotovskii, L. S.
HIGH-VOLTAGE DIRECT-CURRENT CAPACITANCE MACHINES. 18 Sep 61 [169]p. 138 refs.
MCL-1398/1+ 2; AD-264 505.
Order from OTS or SLA $12.00 61-28710

Unedited rough draft trans. of mono. Yemkostnye Mashiny Postoyannogo Toka Vysokogo Napryazheniya, Moscow, 1960, 154p.

DESCRIPTORS: Direct current, *Electricity, Machines, *Electrical engineering, Electrical equipment, *Electrical industry, *Electric machinery, Voltage, Electric potential, *Electrostatic capacitance.

The present work, devoted to an examination of high-voltage d-c capacitance machines, and not being a survey of existing machines, undertakes to classify capacitance machines and give their general theory, and on this basis to evaluate the possibilities of creating, at the present engineering level, capacitance machines with high specific power and efficiency. In addition, the work considers the characteristics of various types of machines operating as generators and motors, conditions of self-excitation, commutation, and in conclusion analyzes the operation of capacitance machines in various specific systems. (Author)

Schneider, H. D.
ORIGIN AND COMPENSATION OF THE LINE FLYBACK INTERFERENCE SIGNAL IN VIDICON CAMERA INSTALLATIONS. [1961] 12p. 7 refs.
Order from SLA $1.60 61-20039

Trans. of Elektronische Rundschau (Germany) 1960, v. 14, no. 9, p. 367-369.

DESCRIPTORS: *Television cameras, *Electron tubes, Interference, Sources, Cameras.

An interference pulse as a rule appears during the blanking interval of the picture signal during the operation of Vidicon cameras. This interference pulse originates from the return trace of the horizontal sweeping system. In the signal amplifier this interference pulse can give rise to inadvertent displacement of operating points in tubes with clamping circuit and, consequently, errors of gradation and picture black in the signal. The causes of the interference signal are analyzed and methods indicated to eliminate them. (Author)

Shishkin, N. F. and Mindeli, G. V.
FAST-ACTING PROTECTION AGAINST LEAKAGE CURRENTS AND THE COMPENSATION OF CAPACITIVE CURRENTS IN LOW-VOLTAGE NETWORKS (Bystrodeistvuyushaya Zashchita ot Tokov Utechki i Kompenzatsiya Emkostnykh Tokov s Nizkovol'tnykh Setyakh). Sep 61 [12]p. 2 refs. RTS 1909.
Order from OTS or SLA $1.60 61-28030

Trans. of Ugol' Ukrainy (USSR) 1960 [v. 4] no. 10, p. 35-39.

DESCRIPTORS: *Electrical networks, *Electric currents, Electroshock, Countermeasures, *Electric insulation, Safety

Tsypkin, Ya. Z.
INFLUENCE OF RANDOM NOISE ON THE PERIODIC MODE IN RELAY-TYPE AUTOMATIC SYSTEMS (Vliyanie Sluchainykh Pomekh na Periodicheskii Rezhim v Releinykh Avtomaticheskikh Sistemakh). 10 Oct 61 [8]p. 4 refs. JPRS: 10437.
Order from OTS or SLA $1.10 61-28893

Trans. of Akademiya Nauk SSSR. Doklady [1961] v. 139, no. 3, p. 570-573.

DESCRIPTORS: Automatic, *Remote control systems, Control systems, Relays, Noise, Statistical distributions, Operation

Consideration is given to a relay-type automatic system consisting of a relay element and an arbitrary continuous-acting part that incorporates both lumped and distributed parameters. It is assumed that there exists a periodic frequency mode in this system. This periodic mode may correspond either to forced oscillations produced by an external periodic disturbance of a multiple frequency or, in the absence of an external disturbance, by self-oscillation. The presence of random disturbances (fluctuations) in the relay element or the continuous part affects the periodic regime. The mean-square value is found of the change in the periodic regime produced by a random-noise disturbance.

Vaintsvaig, M. N.
THE CAPACITY OF FUNCTIONAL-ELEMENT SYSTEMS (O Moshchnosti Skhem iz Funktsional'nykh Elementov). 5 Oct 61 [10]p. 6 refs. JPRS: 10355.
Order from OTS or SLA $1.10 61-28740

Trans. of Akademiya Nauk SSSR. Doklady, 1961, v. 139, no. 2, p. 320-323.

DESCRIPTORS: *Cybernetics, *Control systems, Synthesis.

One of the basic problems of cybernetics is that of synthesizing control systems. The specific nature of this problem depends on the selection of the class of control systems, as well as on the method of estimating their complexity. The class of networks composed of functional elements has been taken as the class of control systems to be studied in the present paper. A certain quantity characterizing the functioning of the network was selected as an index of the simplicity of the network. Specifically, this may be the average capacity of the network, the maximum capacity of the network, the maximum number of simultaneously excited elements, etc. The Shannon function is introduced in the usual manner proceeding from this index. It is shown that as the finite basis varies, this function varies in the range from $C_1 n$ to $C_2(2^n/n)$, where C_1 and C_2 are certain constants that depend on the basis. It is established that these estimates are exact. (Author)

Vasilenko, V. A.
CONCERNING THE POSSIBILITY OF GENERALIZING THE INVARIANCE PRINCIPLE IN LINEAR AUTOMATIC CONTROL SYSTEMS WITH VARIABLE PARAMETERS (O Vozmozhnosti Obobshcheniya Printsipa Invariantnosti v Lineinykh Sistemakh Avtomaticheskogo Upravleniya s Peremennymi Parametrami). 10 Oct 61 [7]p. 6 refs. JPRS: 10435.
Order from OTS or SLA $1.10 61-28886

Trans. of Akademiya Nauk SSSR. Doklady [1961] v. 139, no. 2, p. 324-326.

DESCRIPTORS: Automatic, *Control systems, Synthesis, Linear systems, *Cybernetics, Stability.

The basic propositions of invariance theory can be extended to systems with variable parameters if by the term "disturbance" we mean not only external disturbances applied to a linear dynamic system, but also internal disturbances governed by the changes in the system's parameters over time or their noncorrespondence to standards of specified value. The solution of the problem of constructing optimal (with respect to any criterion) linear automatic control systems is possible on the basis of the theory of invariance. For this purpose, it is sufficient to know the required (optimum) linear characteristic of the object of control and to regard the deviation from it in the real system as the result of application of external disturbances of which the input (controlled) coordinate must be independent. (Extracted)

Mechanical Engineering

Meissner, J.
METHOD OF CALCULATING ZONE LENGTHS IN MULTI-ZONE PUSHER FURNACES. Nov 61.
Order from BISI £ 4 10s BISI-2481

Trans. of Neue Hütte (East Germany) 1961, v. 6, Aug, p. 455-462.

DESCRIPTORS: *Pusher furnaces, Design, *Zone melting.

Radowicki, Tadeusz.
A METHOD OF ASSESSING THE SUITABILITY OF COAL FOR TRAVELLING-GRATE STOKERS (Metoda Oceny Przydatnosci Wegla do Rusztow Tasmowych) tr. by H. Lubienski. [Nov 61] 67p. 23 refs. PL-480 Int.
Order from OTS $0.75 60-21359

Trans. of Glowny Instytut Gornictwa. [Komunikat] (Poland) 1954, no. 164, 35p.

DESCRIPTORS: *Coal, Combustion, Tests, Coke, Ash, Fuels, Moisture, Ignition, Particles, Slags, *Boilers, Design, Industrial equipment.

Results are given of tests performed by the new method concerning the combustion process on a travelling-grate stoker. Radiation of the atmosphere of a furnace at a rate equivalent to about 100 kg of steam per sq m · hr (or 64,000 kcal/sq m · hr) is sufficient for reliable and rapid ignition of commercial kinds of fine coal on a travelling-grate stoker. The retention time of fuel in the furnace ought to be longer than the time necessary for the combustion zone to reach the bottom of the bed. The rate of spreading of the fire into the depth of the bed determines the productivity of the stoker. That rate is about 1.5-10 mm/min depending on the ash content and surface moisture in the coal. As the fire spreads into the depth of the bed, embracing in the combustion coal grains lying deeper and deeper, not only volatile matter would be released and burnt but, the coke would also burn, and coke constitutes the main component of the combustible matter Most volatile matter is released during the course of the spreading of the fire, but the formation of the remaining volatile matter continues almost to the end of the combustion process. The air-flow rate constitutes the fundamental factor determining the rate at which fuel diminishes on the stoker. The productivity of the stoker by weight increases with the rate of forced draught and the thickness of the bed.

Styrikovich, M. A. and Popyrin, L. S.
ON SELECTING TERMINAL PARAMETERS FOR THE NEW SERIES OF HIGH-CAPACITY LMZ CONDENSING TURBINES. [1961]
Order from FT $12.00 FT-615

Trans. of Teploenergetika (USSR) 1961, v. 8, no. 5, p. 81-85.
Another trans. is available from OTS or SLA $3.60 in 61-27766, JPRS-9865, 4 Aug 61 [37]p.

DESCRIPTORS: *Power plants, *Steam turbines, Production, Turbines, Design, Operation, *Gas turbines, Economics.

UNPRECEDENTED CONQUEST OF THE FORCES OF NATURE [SELECTED ARTICLES]. 14 Sep 61 [28]p. JPRS: 10166.
Order from OTS or SLA $2.60 61-28516

Trans. of 5 selected articles from Priroda (USSR) 1961 [v. 50] no. 5.
#Other translations of these articles are available from OTS $0.50 as 61-31545, APL/JHU TG-230-T241, 13 July 61, 6p.

DESCRIPTORS: Manned, *Space flight, Physiology, Psychology, Biology, Astronautics, USSR.

Contents:
The dream of conquering space has become a reality, by N. S. Krushchev
#The morning of a new era, by A. N. Nesmeyanov
#Through the eyes of the first cosmonaut
The path into space is open, by N. M. Sisakyan
Man returns from space voyage: biology and medicine to serve the flights into space, by P. K. Isakov

Guntzel-Lingner, U.
PHOTOGRAPHY AS A MEANS FOR THE OBSERVATION OF ARTIFICIAL EARTH SATELLITES. [1961] 15p.
Order from SLA $1.60 61-20057

Trans. of Fotografie (East Germany) 1960, v. 14, no. 7, p. 259-260 and 279-281.

DESCRIPTORS: Photography, *Astronomical observatories, Solar systems, *Satellite vehicles, Artificial planetoids, Earth, Astronomical cameras, *Orbital flight paths, *Satellite vehicle trajectories.

Levantovskii, Vladimir Isaakovich.
BY ROCKET TO THE MOON: PT. I. Apr 60 [244]p. 25 refs. MCL-879/1+2+3+4, pt. 1; AD-264 192.
Order from OTS or SLA $16.00 61-27036-1

Trans. of mono. Raketoi k Lune, Moscow, 1960, chaps. 1-7 and table of contents.
#A translation of chap. 1 is available from OTS $0.75 as 60-41473; JPRS-5686, 28 Sep 60, 29p.

DESCRIPTORS: *Spaceships, Space capsules, Artificial planetoids, *Satellite vehicles, Satellite rendezvous vehicles, Satellite vehicle trajectories, Rocket propulsion, Space probes, Lunar probes, *Space navigation, *Astronautics, Orbital flight paths, *Space flight, *Moon, Solar systems, Planetary atmospheres, Space environmental conditions, Interstellar matter, Extraterrestrial bases, Extraterrestrial geography, Explorations
Contents:
#The rocket, a means of flight into space
The motion of bodies in a spherical gravitational field
The moon in the sphere of influence of the earth
Trajectories for hitting the moon
Different types of flight trajectories to the moon
Artificial moon satellite
Stages in flight to the moon

Levantovskii, V[ladimir] I[saakovich].
BY ROCKET TO THE MOON: PT. II. Apr 60 [208]p. 124 refs. MCL-879/1+2+3+4, pt. 2; AD-258 843.
Order from OTS or SLA $14.00 61-27036-2

Trans. of mono. [Raketoi k Lune, Moscow, 1960] chaps. 8-10, suppl., bibliography, indices, plates.

DESCRIPTORS: Spaceships, Space capsules, *Astronautics, Extraterrestrial bases, Orbital flight paths, Satellite vehicle trajectories, *Space flight, Space probes, *Satellite vehicles, *Lunar probes, *Moon, Surfaces, Bibliography, Manned, *Satellite rendezvous vehicles, *Space navigation, Interstellar matter, Rocket propulsion, Sounding rockets, Artificial planetoids, Extraterrestrial geography, Solar systems, Planetary atmospheres, Exploration, Space evnironmental conditions
Contents:
Flights to the moon, plans and reality
Investigation of the moon and space
Interplanetary flights
Supplement added in proof
Literature on astronautics

Petrovich, G. V.
STUDY OF THE MOON WITH THE AID OF ROCKETS: PROBLEMS OF FUELS FOR RETURN FLIGHT FROM THE MOON (Issledovanie Luny Raketnymi Apparatami). 2 Mar 60 [3]p. AF 1419511.
Order from OTS or SLA $1.10 61-28363

Partial trans. of Akademiya Nauk SSSR. Vestnik, 1959 [v. 29] no. 11, p. 3-22.
Complete translations are available from OTS $0.75 as 60-31109, JPRS-3118, 29 Mar 61, 30p. and from OTS or SLA $2.60 as 61-28361, AF-1 419 540, 18 Mar 60 [26]p.

DESCRIPTORS: *Lunar probes, *Satellite vehicles, Launching, *Rocket research, Radio equipment, Satellite vehicle trajectories, USSR

For abstract see Technical Translations 4: 160, 1960.

FOOD, HANDLING, AND PACKAGING EQUIPMENT

Berg, K. O.
METHOD FOR THE TREATMENT OF CHEESE (Metode for Behandling af Ost). [1961] 3p.
Order from AC $3.50

Trans. of Norwegian patent 80.452, 1952.

DESCRIPTORS: *Cheese, Processing, Patents, Norway.

The invention relates to a method for the treatment of cheese, the purpose of the invention consists partly in preventing the cheese, during fermentation, from being attacked from fungi and bacteria, partly in bringing the loss due to evaporation down to a minimum, and partly in bringing about, that the fermentation proceeds normally. (AC abstract)

SOVIET MACHINE BUILDING: SELECTED TRANSLATIONS NO. 64. 25 May 61 [25]p. JPRS:9302.
Order from OTS or SLA $2.60 61-23013

Trans. of Stroitel'nye i Dorozhnye Mashiny (USSR) 1961 [v. 6] no. 2, p. 3, 14-15, 31; Mekhanizatsiya Stroitel'stva (USSR) 1961 [v. 18, no. 2] p. 1-2, 9-13, 23, 25; and Kuznechno-Shtampovochnoe Proizvodstvo (USSR) 1961 [v. 3] no. 3, p. 1-2, 27-30.

DESCRIPTORS: Construction, *Machines, Classification, *Road building equipment, *Earth moving equipment, *Bulldozers, *Asphalt, *Forge presses, Production, Automation, *Clamps, Load distribution, *Nuclear power plants, Construction, USSR.

Contents:
January plenum of the Central Committee CPSU and the tasks of construction and road machine building
D-546 asphalt carrier
New machines: ZER-500-1 excavator and D-384A bulldozer
Single type classification of construction machines: a way of developing new technology
Mechanization of operations for installation of atomic reactors, by A. N. Komarovskii
New drawn sectional-type pneumatic Roller, by G. N. Sabotin
E-15-14 excavator, by V. M. Lipov and others
Further development of the production of presses and forging machines
Multi-position automatic presses, by L. A. Prishchepionok
Determination of loads on forging manipulator clamping mechanism parts, by V. G. Mironov.

Gasparovic, N.
THE LOAD AND LIFETIME OF THE GAS TURBINE. Apr 60, 5p. 6 refs. Bureau of Ships trans. no. 709.
Order from OTS or SLA $1.10 60-17399

Trans. of V[erein] D[eutscher] I[ngenieure]. Zeitschrift (West Germany) 1957, v. 99, no. 1, p. 23-25.

DESCRIPTORS: *Gas turbines, Turbines, Load distribution, Life expectancy

Pahlitzsch, G. and Rafflenbeul, G.
THE GRINDING AND CUTTING OF HARD METAL WITH DIAMOND GRINDING WHEELS. [1961] 27p. (8 figs. 6 refs. omitted) 9 refs.
Order from SLA $2.60 61-18914

Trans. of Werkstatt und Betrieb (West Germany) 1959, v. 92, no. 4, p. 195-202.
Another trans. is available from SLA $2.60 as 61-16168 [1961] 25p.

DESCRIPTORS: *Grinding wheels, *Grinders, *Cutting tools, Metals, *Refractory materials.

For abstract see Technical Translations 6: 599, 1961.

Gladkikh, A. N. and Maslennikov, N. I.
DESIGNING PASSES AND TOOLS FOR MANUFACTURING BOLTS ON AUTOMATIC LINES. Oct 61.
Order from BISI $3 BISI-2454

Trans. of Kuznechno-Shtampov[ochnoe Proizvodstvo] (USSR) 1960 [v. 2] no. 10, p. 21-24.

DESCRIPTORS: Design, *Bolts, Industrial equipment, Automatic, Production, *Tools, Conveyors.

Mallach, Werner.
THE SULPHURIC ACID REGENERATION PLANT IN THE ACID CIRCUIT OF A WIRE PICKLING PLANT. [1959] [19]p. 1 ref.
Order from SLA $1.60 61-20606

Trans. of Draht (West Germany) 1958, v. 9, no. 9, p. 335-342.
Another trans. is available from BISI $6 10s as BISI-1277 [1959].

DESCRIPTORS: *Sulfuric acid, Recovery, *Wire, Processing, Chemical engineering, Industrial plants, Circuits, Pickling, Regeneration, Metallurgy.

Rogovin, Z. A. and Pogosov, Yu. L.
INVESTIGATION OF THE PROCESS OF HYDROLYSIS OF CELLULOSE BY HYDROFLUORIC ACID (Issledovanie Protessa Gidroliza Tsellyulozy Ftoristovodorodnoi Kislotoi). [Dec 61] 7p. 7 refs. PL-480 Agr.
Order from OTS $0.50 60-51032

Trans. of Gidroliznaya i Lesokhimicheskaya Promyshlennost' (USSR) 1958, v. 11, no. 1, p. 4-6.

DESCRIPTORS: *Cotton cellulose, *Hydrolysis, *Hydrogen compounds, *Fluorides, Saccharides, Condensation reactions, Vacuum apparatus, Manufacturing methods, Acids.

Investigation of the reaction of hydrolysis of raw cotton with concentrated HF has shown, that the formation of water-soluble hydrolysis products of cellulose or of condensation of monosaccharides upon treatment with 90 to 100% HF takes 5 to 10 minutes at normal temperature. The possibility of performing hydrolysis with hydrofluoric acid using apparatus prepared from synthetic material and in particular from polyethylene, was shown. The amount of HF used in hydrolysis can be lowered to 50 to 70% of the initial weight of cellulose. Practically complete regeneration of HF after termination of the reaction of hydrolysis, by means of suction of the main bulk of HF from the solutions under vacuum at a temperature of 40 to 50°C and precipitation of the remaining acid in the form of CaF_2, is possible. (Author)

Schwartz.
DEVELOPMENT TRENDS IN THE TECHNOLOGY OF GRINDING. June 61, 14p. (16 figs. omitted).
Order from SLA $1.60 61-18570

Trans. of Zellstoff u[nd] Papier (Germany) 1959, v. 8, no. 12, p. 455-464.

DESCRIPTORS: *Wood pulp machines, *Grinders, *Paper industry, Applied mechanics, Industrial research, Manufacturing methods, Design, Costs, *Grinding wheels, Machine tools, *Ball mills

Voigt, Heinz and Schmalhaus, Gerhard.
INFLUENCE OF REGENERATOR DESIGN ON THE PRE-HEATING OF AIR AND GAS IN TRIPLE-GAS FIRED OPEN HEARTH TILTING FURNACES. [1959] [22]p. (6 refs. omitted).
Order from SLA $2.60 61-20665

Trans. of Stahl und Eisen (West Germany) 1959, v. 79, no. 2, p. 81-88.
Another trans. is available from BISI £5 10s as BISI-1228 [1959].

DESCRIPTORS: *Open hearth furnaces, Design, Waste gases, Temperature, Thermocouples, Pyrometers, Roofs, Combustion chamber liners, Combustion chamber gases, Gas flow, Resistance, Velocity, Orifices, Refractory materials, Air, Chemical analysis, Thermodynamics, Brick, Heat exchangers, Water coolers, Gas turbine regenerators, Tests, Statistical analysis.

Wubbenhorst, H.
COMPARATIVE DATA FOR THE OPERATION OF OPEN HEARTH FURNACES. [1961] [15]p. 7 refs.
Order from SLA $1.60 61-20601

Trans. of Radex-Rundschau (Austria) 1958, no. 7, p. 348-353.

DESCRIPTORS: *Open hearth furnaces, Operation, Austria.

For the comparison of open hearth furnaces, data are collected and explained for the upper furnace, the lower furnace, the charge, the weight of the melt, output, the periods, efficiency, heat consumption and life. For a clearer picture of the constructional data of the lower furnace, a checker table is suggested as a means of keeping an operational record. (Author)

Transport, Traction and Hoist Facilities

PROCEDURE FOR STRENGTH CALCULATIONS FOR SEA-GOING CARGO SHIPS, 2D ED, tr. by C. W. Proctor. 1961 [324]p. 31 refs.
Order from OTS or SLA $19.75 61-23980

Trans. of mono. Metodika Rascheta Prochnosti Morskikh Transportnykh Sudov, 2d ed, Leningrad, 1959.

DESCRIPTORS: *Cargo ships, Cargo, Shipping, *Structures, Mathematical analysis, *Stresses, Mechanical properties, Ships.

The monograph consists of four chapters: (1) The computation of bending moments and shear forces for the overall bending of a ship; (2) Calculations for verifying the general strength of a ship and summarization of the stresses; (3) Calculations for the local strength of ships carrying dry cargo; and (4) Calculations for the local strength of tankers. Strength calculations for all new Soviet ships in the project design stage are to be carried out in conformity with these procedures. The procedures can also be used for the survey checking of ships already in commission.

Mulyukin, F. P.
INCREASE OF FREIGHT TRANSPORTATION.
28 Aug 61 [31]p. (2 figs. 2 tables omitted).
MCL-1049/1; AD-264 521.
Order from OTS or SLA $3.60 61-28709

Unedited rough draft trans. of mono. Razvitie Zheleznodorozhnogo Transporta v Semiletii: Sbornik Statei (Development of Railroad Transportation During the Seven-Year Plan) Moscow, 1960, p. 8-21.

DESCRIPTORS: *Transportation, *Cargo, Railroad cars, Railroads, Traffic, Handling.

It is proposed to increase the total freight traffic in all forms of transportation by approximately 60%. The freight traffic handled by the railroads will increase by 39 to 43% and will amount to 1,800 to 1,850 billion ton/kilometers in 1965.

Werner, Donovan.
THE DISTRIBUTION OF CEMENT IN BULK.
22 Sep 61 [9]p. (4 figs. omitted).
Order from SLA $1.10 61-20479

Trans. of Cement och Betong (Sweden) 1948 [v. 23, no. 1, p. 17-27].

DESCRIPTORS: *Cements, Distribution, *Transportation, Costs, Sweden.

MATERIALS

PROCESS AND APPARATUS FOR INTRODUCING ADDITIVES INTO PASTY, VISCOUS AND PLASTIC AGGREGATES. [1961] 5p.
Order from ATS $7.20 ATS-11N57F

Trans. of French patent 1,003,469, gr. 20, cl. 5, by Maschinenfabrik Paul Leistritz A.G., Germany, filed 8 Jan 47, granted 21 Nov 51, pub. 18 Mar 52.

DESCRIPTORS: *Additives

Bodnya, M. D. and others.
REPLACEMENT OF HYDROLYTIC ALCOHOL BY SYNTHETIC ALCOHOL IN THE PRODUCTION OF SPIRIT FURNITURE LACQUERS. Nov 61, 500 words.
Order from TTIS $3.00 TTIS-4012

Trans. of Lakokrasochnye Materialy i Ikh Primenenie (USSR) 1961, no. 3, p. 65-66.

DESCRIPTORS: *Alcohols, *Varnishes, Production, Plastics, Hydrolysis, Furniture, Chemical analysis, Aldehydes.

Endo, Ryuichi.
MOLECULAR WEIGHT DISTRIBUTION OF ELASTOMERS. III. THE EFFECT OF MASTICATION ON THE MOLECULAR WEIGHT DISTRIBUTION OF HEVEA RUBBER. [1961] 11p. 12 refs
Order from SA $15.00

Trans. of Kobunshi Kagaku (Japan) 1961, v. 18, no. 192, p. 214-219.

DESCRIPTORS: *Elastomers, *Rubber, Processing, Mastication, Molecular weight, Distribution, Viscosity, Osmotic pressure, Pressure, Measurement.

Hevea rubber was masticated by means of a roller, samples being prepared varying the mastication time. Fractions of these samples were made by fractional precipitation, and their viscosities and osmotic pressures were measured to know the distribution of molecular weight. The results obtained are that the width of the distribution function reduced gradually sharpening with the increase of the processing time, and that the parameter representing the width of the distribution function based on the statistical dispersion accorded with the intuition received from the distribution. (Author)

LeGrand, J.
EQUATIONS OF MOTION OF A DUST PARTICLE ENTRAINED BY A GAS STREAM: APPLICATION TO INJECTOR NOZZLES IN CEMENT KILNS. [1961] 15p.
Order from SLA $1.60 61-18848

Trans. of Rev[ue des] Mat[eriaux de] Constr[uction et de Travaux Publics. Edition C] (France) 1960, no. 542, p. 309-315.

DESCRIPTORS: *Gas flow, *Particles, Motion, Coal, *Injectors, Nozzles, *Cement kilns, Differential equations, Construction materials industry.

The equations for the movement of a dust grain are derived from an analysis of the forces acting on it. These equations are applied to the grains of pulverized coal charged into cement kilns through two entirely different forms of nozzle; very fast in one case, slower in the other. The relative advantages offered by the two forms are shown on the curves giving the speeds and the time for the run-through in relation to the distance traveled.

Lein, J.
MECHANICAL INVESTIGATIONS OF OIL SEALS FOR ROTATING SHAFTS. [1961] [16]p.
Order from SLA $1.60 61-20759

Trans. of Konstruktion (Germany) 1954, v. 6, no. 10, p. 384-389.

DESCRIPTORS: Shafts, Rotating structures, *Oil seals, Friction, Seals.

Office of Technical Services, Dept. of Commerce, Washington, D. C.
LEATHER, HIDES, AND SHOES. Oct 61, 9p. 100 refs. OTS Selective Bibliography SB-483.
Order from OTS $0.10 OTS SB-483

DESCRIPTORS: *Leather, *Fur, *Shoes, *Bibliography.

Lists 100 foreign and domestic references on leather, hides, and shoes added to the OTS collection during the period 1950 to October 1961. Covers research on water resistant leathers; leather fungicides and finishing; treatment of hides; tanning agents; moisture penetration tests on shoes, etc.

Rosner, M. E.
IMPACT TESTING OF MATERIALS. English adaptation of der Schlagerversuch in der Werkstoffprüfung, by W. Späth. 1961, 213p.
Order from GB $6.00

DESCRIPTORS: *Materials, Iron alloys, Plastics, Rubber, Wood, Tool steel, Steel, Test methods, Test equipment.

Ceramics and Refractories

Chernyak, M. G. and Pevzner, R. L.
CERTAIN TECHNICAL PROBLEMS IN THE MANUFACTURE OF GLASS FILTERS AND GLASS PLASTICS [AND] POROUS PERMEABLE CERAMICS (Nekotorye Tekhnicheskie Problemy v Proizvodstve Steklovolokna i Stekloplastikov [and] Poristaya Pronitsaemaya Keramika). 17 Feb 61 [14]p. MCL-663/1-2: AD-257 683.
Order from OTS or SLA $1.60 61-27406

Unedited rough draft trans. of Steklo i Keramika (USSR) 1960 [v. 17] no. 2, p. 28-31 and 47.

DESCRIPTORS: *Glass textiles, *Plastics, Insulating materials, Thermal insulation, Acoustic insulation, Electric insulation, Production, Industrial production, Borohydrides, Substitutes, *Ceramic materials, Esters, Polymers, Resins, Economics, Porous materials.

Labusca, E. and others.
EFFECT OF CRYSTAL STRUCTURE ON SPECIFIC PROPERTIES OF HARD MINERAL CERAMICS. Oct 61, 2800 words.
Order from HB $7.90 HB-5258

Trans. of [Academia Republicii Populare Romine. Centrul de Cercetari Metalurgice]. Studii se Cercetari[i] de Metalurgie (Rumania) 1961, v. 6, no. 1, p. 103-112.

DESCRIPTORS: *Crystal structure, *Cutting tools, *Ceramic materials, Particles, *Sintering, Temperature, Mechanical properties, Microstructure, Electron microscopes, Production, Minerals, Aluminum compounds, Oxides, *Hardness.

Reinhardt, G.
THE BEHAVIOUR OF BASIC BRICKS IN REDUCING ATMOSPHERE AND THEIR BEHAVIOUR AS REGARDS CARBON MONOXIDE METHANE DISINTEGRATION. [1961] [10]p.
Order from SLA $1.10 61-18445

Trans. of Tonindustrie-Zeitung (West Germany) 1958, v. 82, no. 3/4, p. 38-41.

DESCRIPTORS: Magnesium compounds, Carbonates, *Brick, Physical properties, Fracture (Mechanics), Carbon compounds, *Monoxides, *Methanes, Chemical reactions, Temperature, Tests.

The investigations were limited to a special magnesite brick resistant to temperature changes. The variations in physical properties caused by treatment in a reducing atmosphere were determined. (Author)

Fuels, Lubricants, and Hydraulic Fluids

TESTING OF LUBRICATION OILS, LIQUID FUELS AND RELATED LIQUIDS: DETERMINATION OF DENSITY. [1961] 15p.
Order from ATS $20.85 ATS-22N56G

Trans. of German standards specification DIN 51757, 1955.

DESCRIPTORS: *Lubrication, *Oils, Fuel oil, Density, Fuels, Liquids.

Devecchi, W.
DETERMINATION OF THE COKING CAPACITY OF COALS ACCORDING TO THE PLASTOMETRIC METHOD. [1960] [31]p. 27 refs.
Order from OTS or SLA $3.60 60-13243

Trans. of Schweizerischer Verein von Gas- und Wasserfachmännern. Monats-bulletin, 1952 [v. 32] no. 4, p. 3-15.

DESCRIPTORS: *Coal, Plasticity, Test methods, *Coke, Production

Losev, B. I.
SOLIDIFIED LIQUEFIED GASES. [1961] 10p.
Order from ATS $16.40 ATS-70N56R

Trans. of Gazovaya Prom[yshlennost'] (USSR) 1959, v. 4, no. 12, p. 17-24.
Another trans, is available from OTS or SLA $1.10 as 61-14954 [1961] 10p.
DESCRIPTORS: *Fuels, Transportation, Storage, *Liquefied gases, Solids.

Panchenko, G. M.
INCREASE OF THE VISCOSITY OF OILS UNDER THE ACTION OF A HIGH FREQUENCY ELECTROMAGNETIC FIELD. [1961] 5p. 7 refs.
Order from OTS or SLA $1.10 61-18324

Trans. of mono. Soveshchanie po Vyazkosti Zhidkostei i Kolloidnykh Rastvorov (Conference on Viscosity of Liquids and Colloidal Solutions) [held] 12-[16] May 41. [Trudy] 1944, v. 1, p. 191-195.

DESCRIPTORS: *Oils, *Viscosity, High frequency, *Mineral oils, Electromagnetic fields.

Three Baku oils were subjected to the action of ultrashort waves of frequencies ranging from 12,000 to 100,000 kilohertz for 6 hours at temperatures of from 20 to 42°C. and also to high frequency electrodeless discharge of a frequency of 6×10^7 hertz for 10 hours and the change in the viscosity of these oils observed. In the first series of experiments it was found that a wave length of 7 m brings about the maximum increase in the viscosity of the oils and that this increase is reduced as the wave length becomes longer. An 18-m wave has no effect. In the second series of experiments cooling and rotation of the reaction tube had to be applied to prevent extensive cracking and coking. The viscosity of the oils rose and their color became lighter. The temperature coefficient of viscosity of spindle and machine oil increased somewhat, but that of cylinder oil decreased. In the presence of hydrogen the increase in the viscosity is smaller. (Author)

Sergienko, S. R.
ON THE CATALYTIC CYCLIZATION OF ISOAMYLBENZENE. [1961] [2]p. 14 refs.
Order from OTS or SLA $1.10 61-20179

Trans. of [Akademiya Nauk SSSR]. Comptes Rendus (Doklady) de l'Academie des Sciences de l'U. R. S. S., 1940, v. 27, no. 9, p. 960-963.

DESCRIPTORS: *Benzenes, Catalysts, *Naphthalenes, *Hydrocarbons, Decomposition, Temperature, Chemical bonds, Butyl radicals, Methyl radicals, Alkyl radicals, Chain reactions, *Pentyl radicals.

Vitman, L. A., Katsnel'son, B. D., and Efros, M. M.
THE ATOMIZATION OF LIQUID FUEL BY MEANS OF PNEUMATIC INJECTORS: 21 Sep 61 [40]p. 13 refs. MCL-1287/1+2.
Order from OTS or SLA $3.60 61-28976

Unedited rough draft trans. of mono. Voprosy Aerodinamiki i Teploperedachi v Kotel'no-Topochnykh Protsessakh, Moscow, 1959, p. 5-34.

DESCRIPTORS: Liquids, *Fuels, Atomization, *Air ejectors, Pneumatic devices, Tests.

The application of the theory of similitude to problems of the atomization of a viscous liquid in air injectors resulted in the criterial function

$$\frac{d}{D} = f\left(\frac{\rho_g w^2 D}{\alpha}; \frac{\mu^2}{\rho_l \alpha D}\right)$$

for determining the mean diameter (d) of the drops of an atomized jet. Here D is the characteristic size of the injector, ρ_g is gas density, w is the relative speed between the air and the liquid, ρ_l is the density of the liquid, μ is its coefficient of viscosity, and α is coefficient of surface tension. The degree of uniformity of

the drops (size distribution) can be determined by

$$R = \exp -\left(\frac{1}{m} \cdot \frac{\delta}{d}\right)^m$$

where R is the part, by weight, of the liquid consisting of drops whose sizes exceed δ, and m is a constant which depends on the injector design. Several design changes are recommended for the test injectors.

Leather and Textiles

Office of Technical Services, Dept. of Commerce, Washington, D. C.
TEXTILE FABRICS AND RELATED RESEARCH. Sep 61, 30p. 401 refs. OTS Selective Bibliography SB-481.

DESCRIPTORS: *Textiles, Cotton textiles, Woolen textiles, Rayon fibers, Nylon, Orlon, Dacron, Parachute fabrics, Elastic webbing, Dyes, Finishes, Processing, Machines, *Bibliography

Lists 401 domestic and foreign reports added to the OTS collection during the period 1950 to October 1961. Reports are separated into categories of fabrics, general; specific fabrics, like cotton, wool, rayon, nylon, orlon, and dacron; parachute fabrics and webbing; textile finishes (fungus, fire, oil, water and crease resistant); dyes; textile machinery; and Government-owned patents. Research covers such subjects as geometry of fabrics, thermal stability and high-temperature fabrics, antistatic agents, fabric blends, surface testing, ultrasonic washing of wool, orlon felt in glass-reinforced laminates, impact testing of parachute fabrics and webbing, textile machinery, and other related material.

Office of Technical Services, Dept. of Commerce, Washington, D. C.
TEXTILE FIBERS. Sep 61, 25p. 347 refs. OTS Selective Bibliography SB-480.
Order from OTS $0.10 OTS SB-480

DESCRIPTORS: *Textiles, *Synthetic fibers, *Threads, *Cordage, Fibers, *Bibliography, Patents.

Lists 347 domestic and foreign reports on natural and synthetic fibers; threads and yarns; cordage and hard fibers added to the OTS collection during the period 1950 to October 1961. Covers research on fiber blends, chemical identification of fibers, fatigue testing, high speed spinning, fiber dyeing, thermal stability, several new foreign fibers, non-woven materials, and Government-owned patents.

Photographic Materials

Belorusets, M. and Ionov, B.
THE MIRACLE SCREEN. [1961] [9]p.
Order from OTS or SLA $1.10 61-18674

Trans. of Tekhnika Molodezhi (USSR) 1960 [v. 28] no. 7, p. 37-39.

DESCRIPTORS: *Printing, *Lithography, Materials, Photographic emulsions, Photographic films, Photographic plates.

Screened films for relief-, surface-, and intaglio printing are discussed.

Khaikin, M. S., Derstuganov, G. V. and others.
THE DEVELOPING PROPERTIES OF SOME 4-AMINO-5-PYRAZOLONES AND THEIR DERIVATIVES. [1961] 10p.
Order from ATS $13.60 ATS-38N56R

Trans. of Vsesoyuz[nyi] Nauch[no]-Issledovatel['skii] Kinofotoinst[itut]. Trudy (USSR) 1960, no. 37, p.17-26.

DESCRIPTORS: *Amines, *Pyrazolones, *Pyrazolone derivatives, *Photographic chemicals, Chemicals, Physical properties.

Kheifets, S. A. and Sveshnikov, N. N.
5,5'-AND 6,6'-DIPHENYLTHIACARBOCYANINES. Pt. 15 of Investigations in the Field of Cyanine Dyes. [1961] 9p.
Order from ATS $14.95 ATS-10N57R

Trans. of Vsesoyuz[nyi] Nauch[no]-Issledovatel'[skii] Kinofotoinst[itut]. Trudy (USSR) 1960, no. 40, p. 12-20.

DESCRIPTORS: *Phthalocyanines, *Dyes.

Ooue, S.
THE RELATION BETWEEN SHARPNESS AND THE SHAPE OF THE CHARACTERISTIC CURVE OF PHOTOGRAPHIC MATERIALS. Pt. 1 of Sharpness of the Photographic Image. [1961] 11p.
Order from ATS $21.75 ATS-84N53J

Trans. of Oyô Butsuri (Japan) 1960, v. 29, no. 12, p. 849-855.

DESCRIPTORS: *Optical images, *Photographic materials.

Pokrovskaya, K. I.
FORMATION OF SILVER COMPLEXES BY THIATRICARBOCYANINES CONTAINING VARIOUS SUBSTITUENTS IN THE POLYMETHINE CHAIN. Pt. 3 of Complex Compounds of Polymethine Dyes with Silver Ions. [1961] 7p.
Order from ATS $10.25 ATS-14N57R

Trans. of Vsesoyuz[nyi] Nauchno]-Issledovatel'[skii] Kinofotoinst[itut]. Trudy (USSR) 1960, no. 40, p. 86-94.
DESCRIPTORS: *Complex compounds, *Silver compounds, Synthesis, *Phthalocyanines, *Dyes, Silver, Ions.

Snyatinovskaya, L.
DS-5 COLOR FILM. [1961] 5p.
Order from ATS $8.50 ATS-68N56R

Trans. of Sovet[skoe] Foto (USSR) 1961 [v. 21] no. 5, p. 40-42.
DESCRIPTORS: *Color film, Photographic film, Films.

Plastics

PROCESS FOR THE PRODUCTION OF CRYSTALLINE POLYOLEFINS. [1961] 19p.
Order from ATS $24.65 ATS-35N57F

Trans. of French patent 1,253,455, by Chemical Investors, SA, Luxembourg, filed 2 Mar 60, granted 2 Jan 61.

DESCRIPTORS: *Ethylenes, *Polymers, Crystals.

Klinger, H. J. and Brauer, H.
SOUND ABSORBING MATERIALS. Nov 61, 3000 words.
Order from TTIS $20.00 TTIS-2330

Trans. of Plaste und Kautschuk (Germany) 1961, v. 8, Aug, p. 435-440.

DESCRIPTORS: *Coatings, Sheets, *Acrylic resins, Test methods, *Sound, *Absorption, Materials, Vehicles.

Zhivukhin, S. M. and Tolstoguzov, V. B.
PRACTICAL UTILIZATION OF PHOSPHONITRILE-CHLORIDE POLYMERS. Pt. 3 of Phosphonitrile-chloride: Its Preparation, Properties and Uses. 7 Nov 61 [8]p. 31 refs. JPRS: 11036.
Order from OTS or SLA $1.10 62-13426

Trans. of Plasticheskie Massy (USSR) [1961] no. 5, p. 26-28.
Another trans. is available from ATS $10.50 as ATS-69N55R [1961] 6p.

DESCRIPTORS: *Phosphonitrile chlorides, Chlorides, *Polymers, Plastics.

Wood and Paper

Andersen, C. W[erth].
PROBLEMS CONCERNING PAPER MACHINE HEAD BOXES. 11 Sep 61, 17p. (18 figs omitted).
Order from SLA $1.60 61-20486

Trans. of Svensk Pappers-tidning, 1961, v. 64, no. 12, p. 461-468.

DESCRIPTORS: *Wood pulp fibers, Particles, Separation, Precipitation, *Paper industry, *Wood pulp machines, Containers, Model tests, Vortices, Configuration, Diffusers.

In order to improve the flow from the slice on to the wire, various boxes were observed while clean water containing a small amount of confetti was circulated in the systems. The free fall of the jet could be observed. Variations in velocity in the cross direction and in the direction of the flow generated small rotating currents, vortexes and shifting boundary layers towards "dead" rotating areas. This causes variations in velocity in the slice jet, and a tendency toward spinning of the fibres and flocculation, especially in the dead areas. The flocculation is reduced when the velocity is increased, but then the influence from vortexes and boundary layers increases strongly. On the basis of these considerations a new headbox was constructed. A low speed double centrifugal pump gives a turbulent discharge with a uniform velocity in the cross direction. The flow is passed through a specially designed diffusor. The cross sectional area is moderate and increases linearly, and is brought to the full width immediately in front of the slice. The decrease of the velocity in the diffusor tends to orient the fibers in the cross direction of the flow. (Author)

Chudinov, B. S.
GRAPHICAL DETERMINATION OF THE HEATING RATE OF WOOD (Graficheskii Raschet Skorosti Nagreva Drevesiny). [Dec 61] 5p. 1 ref. PL-480 Agr.
Order from OTS $0.50 60-51034

Trans. of Derevoobrabatyvayushchaya Promyshlennost' (USSR) 1957, v. 6, no. 4, p. 11-13.

DESCRIPTORS: *Wood, Heating, *Heat transfer, Heat production, Temperature, Mathematical prediction, *Differential equations, *Numerical analysis.

The following conclusions are drawn from an analysis of the basic equation for the rate of change of the temperature field and of the nomograms given. The rate of change of the temperature field in the heated wood is proportional to its thermal diffusivity and to the acting thrust, and inversely proportional to the square of the basic dimension of the heated object. The proportionality factor is the relative rate of change of the temperature field. At the beginning of the heating process the wood layers nearest the surface heat up the fastest, and the heating rate at the surface itself tends to inifinity in the first moment. As time elapses, the rate of heating of the internal layers increases, whereas that of the layers close to the surface decreases and tends to zero. The point of maximum heating rate shifts in the course of time toward the interior of the heated part; the absolute value of that maximum decreases at the same time. Each point of the heated part has its own definite maximum heating rate, which corresponds to a certain definite moment of the heating process. Examples are quoted to show how to find the heating rate of wood from the charts.

Klemm, Karl Heinz.
MECHANICAL WOOD PULP AND LIGNOCELLULOSE AS BASIC RAW MATERIALS IN THE PRODUCTION OF PAPER. [1961] [27]p. (7 figs. omitted) 13 refs.
Order from SLA $2.60 61-20091

Trans. of unidentified German language mono, n.p., 1949(?).

DESCRIPTORS: *Paper, *Production, Materials, *Wood pulp, Cellulose, Wood pulp fibers.

Kühnel, E.
NEW RESIN AND LIGNIN REACTION FOR THE IDENTIFICATION OF PULPS. Aug 61, 6p.
Order from SLA $1.10 61-20667

Trans. of das Papier (West Germany) 1960, v. 14, no. 3, p. 96-99.

DESCRIPTORS: Test methods, *Paper, Quality control, Chemical analysis, Mechanical properties, Physical properties, *Wood pulp fibers, Sulfites, Sulfates, Microanalysis, Colors, *Resins, *Lignin, Identification, Sizing, Iodine compounds, Colorimetric analysis.

Minin, A. N.
PARTICLE BOARDS FROM WASTE WOOD PRODUCED WITHOUT THE USE OF BINDERS (O Plitakh iz Drevesnykh Otkhodov, Izgotovlennykh bez Vyazhushchikh Veshchestv). [Dec 61] 7p. PL-480 Agr.
Order from OTS $0.50 60-21896

Trans. of [Derevoobrabatyvayushchaya Promyshlennost' (USSR) 1957, v. 6, no. 2] p. 11-13.

DESCRIPTORS: *Wood, Hydrolysis, Manufacturing methods, Hardening, *Fiberboard, Humidity, Insulating materials, *Pressboard, Pressure, Adhesives, Fibers

Laboratory investigations showed the possibility of producing boards from sawdust and wood shavings without addition of binding or gelatinizing substances. Depending on the pressing conditions applied, sawdust and wood shavings will yield finished insulating semihardboard and hardboard conforming to GOST No. 4598-53. (Author)

Nederveen, Van.
THE BEATING OF PAPER FIBRES IN LABORATORY APPARATUS. Apr 61, 8p. (20 figs. omitted).
Order from SLA $1.10 61-18267

Trans. of Zellstoff u[nd] Papier (Germany) 1961, v. 10, no. 2, p. 50-56.

DESCRIPTORS: Laboratory equipment, *Wood pulp fibers, *Paper industry, Chemical analysis, Manufacturing methods, Sulfates, Sulfites, Mechanical properties.

MATHEMATICS

INFINITISTIC METHODS. [1961] 362p.
Order from PP $15.00

Trans. of mono. Proceedings of the Symposium on Foundations of Mathematics, Warsaw, n.d.

DESCRIPTORS: *Mathematics, Symposia, Poland, Numerical methods and procedures, Numbers, Functions, Computers, Theory

PROCEEDINGS OF THE INTERNATIONAL SYMPOSIUM ON LINEAR SPACES, HELD AT JERUSALEM. Nov 61, 461p.
Order from PP $14.00

Trans. of mono., pub. Jerusalem, n.d.

DESCRIPTORS: Symposia, *Algebraic topology, *Functional analysis, Topology, Algebras, Series, Functions, Operators (Mathematics), Convex sets, Differential equations, Partial differential equations, Algebra

Faddeeva, V. N. and Terent'ev, N. M.
TABLES OF VALUES OF THE FUNCTION w(z) FOR COMPLEX ARGUMENT z = x + iy. International Series of Monographs on Pure and Applied Mathematics, v. 11, [1961] 285p.
Order from PP $15.00

Trans. of mono. [Tablitsy Znachenii Funktsii ... ot Kompleksnogo Argumenta, Moscow, 1954, 268p.]. Another trans. is available from OTS or SLA $4.60 as 61-10763, [1961] [46]p.

DESCRIPTORS: *Functions, *Tables, Theory, Integrals, Series, Continued fractions.

Gusev, V. D. and Vinogradova, M. B.
CERTAIN FUNDAMENTALS IN THE EXPERIMENTAL DETERMINATION OF THE DISTRIBUTION LAW OF CONTINUOUS RANDOM FUNCTIONS (Nekotorye Obosnovaniya Eksperimental'nogo Opredeleniya Zakona Raspredeleniya Nepreryvnoi Sluchainoi Funktsii) tr. by H. H. [1961] 5p. H-9585.
Order from OTS $0.50 61-31671

Trans. of Moscow U. Vestnik. [Seriya Matematiki, Mekhaniki, Astronomii, Fiziki, Khimii] (USSR) 1959 [v. 14] no. 6, p. 99-105.

DESCRIPTORS: *Statistical functions, Statistical distributions, Probability, Determination, Functions, Distribution.

An analysis is made of the possibility of determining the laws of distribution of stationary random processes at limited time intervals for recording the process. It is demonstrated that the accuracy in the determination of the probability density depends on the ratio of the recording interval to the radius of correlation of the stationary random function. Pointed out are the limitations imposed on the size of the interval if the function is transient. An evaluation for the relationship of the temporary radius of correlation to the recording interval and the limitations imposed on increasing the interval of the transient random function were carried out for random processes having a normal law of distribution, and for a special type of correlation function. An analysis of the statistical properties of the signal phase reflected from the ionosphere demonstrated the possibility of utilizing a method developed for the study of the statistical properties of transient random processes with a weakly expressed transient characteristic. The results may be extended to include cases involving the statistical properties of functions, which describe the summation of stationary random processes when their correlation radii differ markedly one from the other.

Hahn, Wolfgang.
ON THE APPLICATION OF THE SECOND METHOD OF LYAPUNOV TO DIFFERENCE EQUATIONS. [1961] [28]p. 7 refs.
Order from SLA $2.60 62-10143

Trans. of Mathematische Annalen (West Germany) 1958, v. 136, no. 5, p. 430-441.

DESCRIPTORS: *Difference equations, Numerical methods and procedures, Special functions, Theory.

The stability is examined of solutions of difference equations with the help of a modification of the so-called Second or Direct Method of Lyapunov. A few general theorems of the method are proved in the form valid for equations of the type $\underline{r}(t + 1) = \underline{f}(\underline{r}, t)$ $(t = t_0, t_0 + 1, \ldots)$, where an immediate application of the theorems of Lyapunov and Chetaev, relative to differential equations, is not possible. The method is shown for constructing "Lyapunov Functions" for the linear difference equation $\underline{r}(t + 1) = a(t)\,\underline{r}(t)$ or $\underline{r}(t + 1) = A\,\underline{r}(t)$. An essential (even if only sufficient) assumption in this case is the so-called "exponential stability" of the trivial solution. (Author) (See also 59-12410)

Kireeva, I. E. and Karpov, K. A.
TABLES OF WEBER FUNCTIONS, VOL. 1. Mathematical Tables Series, v. 15. [1961] 240p.
Order from PP $20.00

Trans. of unidentified Russian mono., n.p., n.d.

DESCRIPTORS: *Special functions, Tables.

Kulczycki, S.
NON-EUCLIDEAN GEOMETRY. International Series of Monographs on Pure and Applied Mathematics, v. 16. [1961] 208p.
Order from PP $10.00 (text ed., $7.50)

Trans. of unidentified Polish (?) mono., n.p., n.d.

DESCRIPTORS: *Geometry, Textbooks, Poland, Mathematics.

Kuratowski, Kazimierz.
INTRODUCTION TO SET THEORY AND TOPOLOGY. International Series of Monographs on Pure and Applied Mathematics, v. 13. [1961] 283p.
Order from PP $7.50 (text ed., $6.50

Trans. of unidentified Polish (?) mono., n.p., n.d.

DESCRIPTORS: *Mathematics, Textbooks, Poland, *Algebra, *Topology, Algebraic topology.

Nosova, L. N.
TABLES OF THOMSON FUNCTIONS AND THEIR FIRST DERIVATIVES. Mathematical Tables Series, v. 13. [1961] 430p.
Order from PP $20.00

Trans. of mono. [Tablitsy Funktsii Tomsona i Ikh Pervykh Proizvodnykh, Moscow, 1960].

DESCRIPTORS: *Special functions, Tables.

Pagurova, V. I.
TABLES OF THE EXPONENTIAL INTEGRAL $E_v(x) = \int_1^\infty e^{-xu}\, u^{-v}\, du$. Mathematical Tables Series, v. 8. [1961] 151p.
Order from PP $12.50

Trans. of unidentified Russian mono., n.p., n.d.

DESCRIPTORS: *Integrals, Functions, *Special functions, Tables.

Smirnov, N. V.
TABLES FOR THE DISTRIBUTION AND DENSITY FUNCTIONS OF t-- DISTRIBUTION ("STUDENT" DISTRIBUTION). Mathematical Tables Series, v. 16. [1961] 130p.
Order from PP $12.50

Trans. of unidentified Russian mono, Moscow, n.d.

DESCRIPTORS: *Statistical functions, *Statistical distributions, Tables, Statistical tests.

Warmus, M.
TABLES OF ELEMENTARY FUNCTIONS. Mathematical Tables Series, v. 14. [1961] 565p.
Order from PP $15.00

Trans. of unidentified Polish mono., Warsaw, n.d.

DESCRIPTORS: *Functions, Tables.

Zaguskin, V. L.
HANDBOOK OF NUMERICAL METHODS FOR SOLUTION OF EQUATIONS. [1961] 196p.
Order from PP $6.50

Trans. of unidentified Russian (?) mono., n.p., n.d.

DESCRIPTORS: *Applied mathematics, *Handbooks, Mathematics, *Equations, Numerical methods and procedures.

Computing Devices

COMPUTING AND CALCULATING MACHINES.
9 Nov 61 [7]p. JPRS: 11001.
Order from OTS or SLA $1.10 62-13374

Trans. of #Izmeritel'naya Tekhnika (USSR) 1961, no. 4, p. 64 and Standartizatsiya (USSR) 1961, no. 3, p. 57.

DESCRIPTORS: Conferences, *Digital computers, Computers, Measurement, Instrumentation, Production, Quality control, USSR.

Contents:
Permanent seminar on the manufacture and use of measuring and computing equipment, by V. S. Popov
Conference on the quality of calculating machines, by A. M. Bondarev.

Vakulovskaya, G. V., Finikov, B. I. and others.
CONFERENCE ON COMPUTATIONAL MATHEMATICS AND TECHNIQUES AND CYBERNETICS SEMINARS AT MOSCOW UNIVERSITY. 22 Nov 61 [15]p.
JPRS: 11176.
Order from OTS or SLA $1.60 62-13539

Trans. of #Problemy Kibernetiki (USSR) 1961, no. 5, p. 289-294.

DESCRIPTORS: Conferences, Machine translation, *Applied mathematics, Mathematics, Mathematical logic, Digital computers, Computers, Programming, Automation, *Cybernetics, USSR.

MECHANICS

Hu, Hai-ch'ang.
ON THE THEORY OF UNIFORMLY LOADED ANISOTROPIC CANTILEVER BEAM (AND) ON THE DISPLACEMENTS IN THE PROBLEMS OF SAINT-VENANT, AND THE CENTER OF SHEAR AND THE CENTER OF TWIST. 1 Sep 61 [30]p. JPRS: 4944.
Order from OTS or SLA $2.60 61-28287

Trans. of Wu Li Hsüeh Pao (Chinese People's Republic) 1956, v. 12, no. 4, p. 339-359.

DESCRIPTORS: *Cantilever beams, Beams, Theory, Cylindrical bodies, *Elasticity, Deformation, Shear stresses.

The general theory on uniformly loaded anisotropic cantilever beams is resolved into a more general problem of plane deformation, the general solution of which has been established by Lehnitzky. Consideration is given to the equilibrium of an elastic cylinder fixed at one end and loaded at the other end. The solution of this problem according to Saint-Venant gives a uniquely determined stress system, but the corresponding displacement contains an arbitrary rigid body motion. If the boundary conditions at the fixed end are reduced to six conditions by an energy consideration, these conditions determine the arbitrary rigid body motion in Saint-Venant's solution uniquely. Then the translations and rotations of any transverse cross-section is defined by a similar energy consideration. The center of twist is defined as the point which remains fixed during the twist of the cylinder. The center of shear is defined as such a point that when the resultant of transverse loads passes through it, transverse cross-sections have no rotations about the longitudinal axis. It is shown that these two centers have identical coordinates. It is proved that for constant transverse loads with parallel directions, the one which passes through the center of shear produces minimum strain energy in the cylinder.

Legendre, R.
REGULAR LAMINAR SEPARATION (Décollement Laminaire Régulier) tr. by D. A. Sinclair. 1961, 4p.
NRCC Technical Trans. 982.
Order from NRCC $0.50 NRCC C-3809

Trans. of [Academie des Sciences, Paris]. Comptes Rendus (France) 1955, v. 241, p. 732-734 (pub. by Gauthier-Villars et Cie., Paris).

DESCRIPTORS: *Fluid flow, *Laminar boundary layer, Boundary layer, Pressure, Separation, Mathematical analysis, Differential equations.

Aerodynamics and Pneumatics

Andreev, G. N.
CALCULATION OF RADIANT FLUX IN A LAMINAR BOUNDARY LAYER, tr. by R. P. Illwitzer. 1 Sep 61, 5p. 2 refs. APL/JHU TG 230-T247.
Order from OTS $0.50 61-31626

Trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya: Mekhanika i Mashinostroenie (USSR) 1960, no. 6, p. 109-111.

DESCRIPTORS: Sheets, *Gas flow, *Laminar boundary layer, Boundary layer, Blackbody radiation, Mathematical analysis, Temperature.

Under the assumption that the gas has a constant specific heat, a constant Prandtl number, and a linear relationship between temperature and viscosity, the calculations show that the radiating gas screens the plate to some degree (10 to 15%), but the effect is insignificant.

Kholev, S. R. and Krestnikova, L. I.
EXPERIMENTAL INVESTIGATION OF A DIRECTED GAS STREAM IN IMPULSE DISCHARGE (Eksperimental'noe Issledovanie Napravlennogo Potoka Gaza pri Impul'snom Razryade) tr. by H. H. 11 Aug 61, 9p.
H-9281.
Order from OTS $0.50 61-31637

Trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Fizika (USSR) 1960, no. 1, p. 29-37.

DESCRIPTORS: *Supersonic flow, *Shock waves, *Electric discharges, Reflection, Gases, Air, Argon.

The possibility was studied of obtaining weakly attenuating shock waves over a considerable stretch by obtaining quasi-stationary streams of gases of sufficiently great speed in a cylindrical conduit, and studying some of the properties of these streams depending on the initial pressure, kind of gas, and the parameters of the discharge circuit. (Author)

METALLURGY

METALLURGY, SCIENCE OF METALS, PHYSICO-CHEMICAL METHODS OF RESEARCH (Metallurgiya, Metallovedenie, Fiziko-Khimicheskie Metody Issledovaniya). 22 Aug 61 [59]p. (figs. tables omitted).
MCL-1052/1; AD-264 624.
Order from OTS or SLA $5.60 61-28816

Unedited rough draft trans. of A[kademiya] N[auk] SSSR. Institut Metallurgii. Trudy, 1960, no. 5, p. 22-49 and #156-161.
#Another trans. of p. 22-35 is available from HB $14.80 as HB-5154, July 61, 5100 words; p. 156-161 from OTS $0.50 as 60-41369, 16 Sep 60, 10p.

DESCRIPTORS: *Steel, *Deoxidation, Impurities, Chemical impurities, Oxides, Sulfides, Ores, Mechanical properties, Crystal structure, *Cermets, Molybdenum compounds, Silicides, Nickel alloys, Cobalt alloys, Vanadium alloys, Niobium alloys, Molybdenum alloys, Phase studies, Microstructure, Crystal structure, Mechanical properties, Tensile properties, Hardness, Plasticity, Preparation, Technological intelligence, Translations, USSR, *Metallurgy, Alloys, Test methods.

Contents:
#Effects of deoxidation with a complex alloy of manganese, silicon and aluminum upon the amount and composition of oxide inclusions in steel, by Yu. T. Foryst and others
To the problem of applying the results of mechanical testing to the evaluation of the technique of steel melting and pouring, by A. E. Khlebnikov
On the crystallization sequence of non-metallic inclusions in steel and of sulfides and oxides in ores, by A. L. Zagyanskii
#Investigation of the structure and physico-mechanical characteristics of the alloys of molybdenum disilicide with nickel, cobalt, vanadium and niobium, by E. M. Savitskii and V. V. Baron.

SOVIET INDUSTRIAL DEVELOPMENT: SELECTED TRANSLATIONS NO. 50. 14 June 61 [20]p. JPRS: 9353.
Order from OTS or SLA $1.60 61-23583

Trans. from Pravda Ukrainy (USSR) 1960, 16 Sep; 18 Sep; 21 Sep; 29 Sep; and Zarya Vostoka (USSR) 16 Sep.

DESCRIPTORS: *Industry, *Industrial plants, USSR, Blast furnaces, Iron alloys, Alloys, Automation, Sintering.

Contents:
"Azovstal" will become a model
Critical month for the blast furnace of "Krivorozhskii-Komsomol'skii" plant
New type of ferroalloy
Nikopol' sintering plant is designed by "Giprostal'"
Rails, people and denials.

SOVIET INDUSTRIAL DEVELOPMENT: SELECTED TRANSLATIONS ON SOVIET FERROUS METALLURGY (4). 10 Aug 61, 24p. JPRS: 9893.
Order from OTS $0.75 61-31583

Trans. of 16 selected articles from 1-21 Dec 60 issues of 9 Russian newspapers.

DESCRIPTORS: *Metallurgy, Abstracting, Industrial production, Blast furnaces, *Steel, Electric furnaces, Automation, Arc welding, Steel tubing, Political science, Communism, Deoxidation, *Iron, Rolling mills, Open hearth furnaces, Milling machines, Tractors, Translations.

Contents:
At the Cherepovets metallurgical plant
New blast furnace in Tula
First steel at the largest electric furnace in Leningrad
Full automation in the production of arc-welded tubes
First steel after capital repairs
Fifth mine in the Jursk area
To the first secretary of the Central Committee of the CPSU, the chairman of the Council of Ministers USSR, Comrade Nikita Sergeevich Krushchev
Accounts and elections among party organizations in the Dzerzhinskii rayon, by S. Akhmatov
New deoxidizing agent
Certain problems in the developments of ferrous metallurgy in the Georgian SSR
Unique rolling mill
New open-hearth furnace
New strip mill
Billet mill to be put into operation
A plant that produces tracks
The "2500" mill has produced rolled stock.

Antipin, V. G.
DUST FORMATION IN THE MELTING CHAMBER OF LARGE-CAPACITY OPEN-HEARTH FURNACES. Nov 61, 2100 words.
Order from HB $6.80 HB-5150

Trans. of Izvest[iya] V[ysshikh] U[chebnykh] Z[avedenii]. Chern[aya] Met[allurgiya] (USSR) 1961, no. 2, p. 39-44.

DESCRIPTORS: *Open hearth furnaces, *Wastes gases, Gases, *Particles, Measurement.

Baltz, W. E.
CONTRIBUTION TO THE PROBLEM OF A SUITABLE DRIVE FOR COLD ROLLING REELS. Oct 61.
Order from BISI £4 BISI-2395

Trans. of Stahl [und] Eisen (West Germany) 1953, v. 73, 22 Oct, p. 1404-1409.

DESCRIPTORS: *Reels, Machines, Design, Rolling reels.

Balz, Günther.
THE SPECTROGRAPHIC DETERMINATION OF SMALL AMOUNTS OF ZINC IN ALUMINUM AND ITS ALLOYS. 16 May 45, 9p. 13 refs.
Order from SLA $1.10 61-20771

Trans. of Aluminium (Germany) 1940, v. 22 [no. 7] p. 341-343.

DESCRIPTORS: *Spectrographic analysis, *Zinc, *Aluminum, Aluminum alloys, Corrosion, Chemical analysis, Determination

Benesovsky, F.
IMPROVEMENT OF THE HIGH-TEMPERATURE STRENGTH OF SINTERED IRON-ALUMINUM-MOLYBDENUM POWDER ALLOYS. Oct 61, 4100 words.
Order from HB $9.80 HB-5205

Trans. of Stahl und Eisen (West Germany) 1961, v. 81, no. 11, p. 712-719.

DESCRIPTORS: *Sintered iron, *Aluminum, *Molybdenum, *Powder alloys, Powder metallurgy, *Creep, *Heat resistant alloys, Additives, Chemical analysis, Mechanical properties, Fracture (Mechanics), Dislocations, Production, Alloys, Iron.

Cech, Bohuslav.
THE KINETICS OF SINTERING METAL-CERAMIC MATERIALS WITH FORMATION OF THE LIQUID PHASE. [1961] [20]p. (9 figs. omitted) 10 refs.
Order from SLA $1.60 61-20080

Trans. of Hutnicke Listy (Czechoslovakia) [1960] v. 15, no. 4, p. 287-292.

DESCRIPTORS: *Sintering, *Reaction kinetics, *Liquid metals, Transformations, Phase transitions, *Ceramic materials, Vacuum apparatus, Solids, Gases, *Cermets, Industrial research, Metallurgical analysis, Chemical engineering.

The present sintering theory formulated for crystalline or amorphous substances does not express fully the nature of the phenomena encountered in sintering of two-phase or multi-phase metallic systems with concurrent formation of a liquid phase. The sintering kinetics of these substances observed by direct measurements of shrinkage in compacts placed in a vacuum show a substantial deviation from the theoretical relationships formulated for a model substance. The progress of sintering is influenced not only by viscosity and the surface tension of the liquid phase, but mainly by the adhesion constant, which can be influenced for example by the change in atmosphere. These circumstances complicate sufficiently the behavior of actual systems during sintering and concurrent formation of a liquid phase, so as to prevent the use of simple physical models. The test results reveal that the kinetics of sintering show a noticeable individuality in different systems, especially in the stages of shrinkage. It will be necessary to study these phenomena in connection with the phase changes within the systems. (Author)

Decker, A. and Bousmanne, L.
CONTRIBUTION TO THE STUDY OF BLAST FURNACE GAS COMPOSITION: APPLICATION TO THE CALCULATION OF COKE CONSUMPTION. [1959] [43]p. 10 refs.
Order from SLA $4.60 61-18365

Trans. of Revue Universelle des Mines (France) 1958 [v. 101, ser. 9, v. 14] p. 80-105.

DESCRIPTORS: *Blast furnaces, Operation, Fuel consumption, *Coke, Consumption, *Gases, Volume, Determination.

We have attempted to establish general equations to calculate the volume of each gas produced in the blast furnace; a knowledge of these figures is indeed indispensable for the predetermination of coke consumptions, which was the final aim of the study. (Author)

Decker, A. and others.
THE SOLUBILITY OF BASIC CONVERTER SLAGS IN CITRIC ACID. Sep 61.
Order from BISI £3 5s BISI 2330

Trans. of Rev[ue] Univ[erselle des] Mines (France) 1956 [v. 99] ser. 9, v. 12, Dec, p. 652-660.

DESCRIPTORS: *Slags, Solubility, *Citric acids, Solvent properties.

Donze, G. and Cabane, G.
THE DECOMPOSITION MECHANISM OF THE γ PHASE IN URANIUM-MOLYBDENUM AND URANIUM-MOLYBDENUM-RUTHENIUM ALLOYS. [1961] [22]p. 7 refs.
Order from SLA $2.60 61-16142

Trans. of Rev[ue de] Mét[allurgie]. Mém[oires] Sci[entifiques] (France) 1960, v. 57, no. 6, p. 450-458. Another trans. is available from FRI as FRI Trans-150.

DESCRIPTORS: *Uranium alloys, *Molybdenum alloys, Ruthenium alloys, Decomposition, Phase studies, Alloys.

Firsanova, L. A., Lainer, A. I. and others.
THE OBTAINMENT OF BERYLLIUM-ALUMINUM-COPPER ALLOYS PRODUCED THROUGH THE REDUCTION OF VAPOROUS BERYLLIUM CHLORIDE [AND] THE OBTAINMENT OF MAGNESIUM-BASE ZIRCONIUM LIGATURE ALLOYS BY REDUCTION OF FUSED SALTS. 13 Oct 60 [23]p. (7 figs. 11 tables omitted) 6 refs. MCL-213/1.
Order from OTS or SLA $2.60 61-19551

Rough draft trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Tsvetnaya Metallurgiya (USSR) 1959, no. 1, p. 59-66 and 91-98.

DESCRIPTORS: *Beryllium alloys, *Aluminum alloys, *Copper alloys, *Chlorides, *Beryllium compounds, *Magnesium alloys, Fused materials, Salts, Vapors, Ligatures, Zirconium alloys, Reduction.

Beryllium-Aluminum-Copper Alloys: The reduction of vaporous beryllium chloride permits the use of beryllium chloride, which is contaminated by beryllium oxide or other non-volatile mixtures. The use of fluxes is eliminated for lowering the vapor tension of beryllium chloride. The maximum solubility of beryllium into aluminum (1000° to 1100°C) occurs with no great loss of beryllium chloride due to volatility. Magnesium Base Zirconium Alloys: Prepare a zinc-magnesium ligature under a flux of anhydrous carnallite or other chlorides. Mix continuously potassium fluoro-zirconate and introduce it gradually into the fused flux under which lies the magnesium-zinc ligature, maintaining a temperature of 850°. A high introduction of zirconium into the ligature will be obtained with this method.

Foryst, Yu. T., Mchedlishvili, V. A., and Samarin, A. M.
EFFECT OF DEOXIDATION WITH A Mn-Si-Al ALLOY ON QUANTITY AND COMPOSITION OF OXIDE INCLUSIONS IN STEEL. July 61, 5100 words.
Order from HB $14.80 HB-5154

Trans. of [Akademiya Nauk SSSR]. Inst[itut] Met[allurgii]. Trudy, 1960, no. 5, p. 22-35.

DESCRIPTORS: *Deoxidation, *Manganese alloys, *Silicon alloys, *Aluminum alloys, Chemical analysis, Oxides, Inclusions, *Steel, Alloys.

Galankina, E. A. and Bugrova, V. I.
ASSAYING OF ORES AND PRODUCTS OF NON-FERROUS METALLURGY WITH THE USE OF COPPER FUSION (Probirnyi Analiz Rud i Produktov Tsvetnoi Metallurgii s Primeneniem Mednoi Plavki) tr. by G. Belkov. 1960, 12p. 1 ref. NRCC Technical trans. 889.
Order from NRCC $1.00 NRCC C-3384

Trans. of [Gosudarstvennyi Nauchno-Issledovatel'skii Institut Tsvetnykh Metallov]. Sbornik Nauchnykh Trudov (USSR) 1956, v. 12, p. 45-51.

DESCRIPTORS: *Ores, *Slags, Chemical analysis, Copper, *Copper alloys, Alloys, Diffusion, Metallurgy.

Guessier, A. and Castro, R.
SIMPLE MACHINES FOR THE HIGH TEMPERATURE TESTING OF STEELS AND ALLOYS. 1958 [10]p. 1 refs.
Order from SLA $1.10 61-18393

Trans. of Revue de Metallurgie (France) 1957, v. 54, no. 2, p. 101-106.

DESCRIPTORS: Machines, Test equipment, Test methods, Test facilities, *Heat resistant alloys, *Steel, Creep, Rupture, Alloys.

The various requirements of creep and rupture testing, for production control and for research on new materials are compared and contrasted. The authors then describe the equipment developed and used in their laboratories. The furnaces are horizontal and are controlled by the expansion of the furnace tube itself, operating a relay and on-off switch; accurate temperature control is obtained up to 1150°C. The loading is a combination of lever and eccentric, giving a 50 to 1 load amplification. The loading lever also operates a strain recorder, but for more accurate work test pieces are removed from the furnace periodically for micrometer measurements. (Author)

Kheifets, I. G.
ON THE GRAPHITIZATION OF CHROMIUM-ALLOYED WHITE IRON. Nov 61, 1600 words.
Order from HB $4.80 HB-5411

Trans. from Akademiya Nauk URSR [Kiev]. Dopovidi, 1961 [no. 2].

DESCRIPTORS: *Chromium alloys, *Iron alloys, *Graphite compounds, Grains (Metallurgy) Carbides, Annealing, Cast iron, Metallurgical analysis.

Klarding, J. N. and others.
DECARBURISATION OF THE TAR AND DOLOMITE LINING OF THE BASIC BESSEMER CONVERTER, AND ITS EFFECT OF LINING LIFE. Nov 61.
Order from BISI £6 15s BISI-1394

Trans. of Radex-Rund[schau] (Austria) 1959, May, p. 517-532.

DESCRIPTORS: *Coal tar, *Dolomite, *Combustion chamber liners, Waste gases, Chemical analysis, Metallurgy, Austria.

Kosmider, H. and others.
CONTRIBUTION TO THE USE OF OXYGEN IN OPEN-HEARTH FURNACES. Aug 61, 5700 words.
Order from HB $14.80 HB-5221

Trans. of Stahl und Eisen (West Germany) 1961, v. 81, no. 11, p. 701-707.

DESCRIPTORS: *Open hearth furnaces, Operation, Fuel injection, *Oxygen, Fuels.

Levy, V.
APPLICATION OF MICROHARDNESS MEASUREMENTS TO THE STUDY OF DIFFUSION ZONES (Application des Mesures de Microdurete a l'Etude des Zones de Diffusion). [1961] 15p. (21 figs. omitted).
Order from OTS or SLA $1.60 AEC-tr-4242

Trans. of [Commissariat à l'Énergie Atomique] (France) no. CEA-1317, 1959.

DESCRIPTORS: Microanalysis, Hardness, *Diffusion theory, *Metals, Alloys, Penetration, Industrial diamonds, Statistical analysis.

Microhardness measurements can often be used to establish concentration-penetration curves which characterize diffusion between two metals or alloys. They constitute, in such cases, a simple and rapid method, whose precision, in the first instance, depends on the shape of the curve representing hardness variations as a function of concentration or, more precisely, of the derivative dH/dc of this curve. The accuracy of microhardness measurements depends very much also on the weight and shape of the penetrator used. The use of the Vickers diamond generally leads to the best precisions. In the study of very narrow diffusion zones, however, (zones with a thickness of less than 70 microns in our case), the use of the Knoop diamond is preferable. (Author)

Lundberg, A. S.
THE INTERNATIONAL ORE MARKET: SOME TECHNICAL AND ECONOMIC TRENDS. [1961].
Order from BISI £6 15s BISI-1967

Trans. of Blad [för] Berg[handteringens] Vänner (Sweden) 1960, no. 1, p. 17-47.

DESCRIPTORS: *Ores, Commerce, Economics, Sweden, Production, Quality control, *Steel industry, Mining engineering, Sintering, Pellets, Reduction.

Maertens, P. and Poos, A.
PRELIMINARY SMELTING TRIALS OF IRON-ORE PELLETS IN THE BLAST FURNACE. Aug 61, 3200 words.
Order from HB $9.40 HB-5193

Trans. of Stahl und Eisen (West Germany) 1961, v. 81, no. 12, p. 778-782.

DESCRIPTORS: *Iron, *Ores, *Smelting, *Pellets, Blast furnaces, Metallurgy.

Mikheeva, V. I. and Kost, M. E.
HYDRIDES OF RARE EARTH METALS AND THEIR PRACTICAL APPLICATIONS, tr. by J. Woroncow 16 Sep 60, 10p. 14 refs.
Order from OTS or SLA $1.10 AEC-tr-4325

Trans. from mono. [Redkie Metally i Splavy] (Rare Metals and Their Alloys) Moscow, 1960, chap. 4, sect. 4.

DESCRIPTORS: *Rare earth elements, *Hydrides, *Cerium compounds, Metals, Alloys, Properties, Cerium, Synthesis, Metallurgical analysis.

This work presents certain results of the synthesis and properties study of cerium hydrides which would be of interest to metallurgists. In performing these experiments, we utilized 97% pure metallic cerium with 3% admixture of other rare earth metals. (Author)

Muramatsu, K.
VACUUM FUSION TECHNIQUES USING PLATINUM-NICKEL AND PLATINUM BATHS. Pt. 2 of the Determination of Micro Quantities of Gases in Molybdenum. [1961] 17p.
Order from ATS $37.40 ATS-56N53J

Trans. of Shinku (Japan) 1960, v. 3, no. 11, p. 416-429.

DESCRIPTORS: *Gases, *Separation, Gaseous diffusion separation, Microanalysis, Microchemistry, *Molybdenum, Purification, Platinum, Nickel, Oxygen, Nitrogen, Hydrogen, Carbon, Monoxides, Carbon compounds, Vacuum apparatus.

Shorshorov, M. Kh. and Nazarov, G. V.
WELDING OF TITANIUM AND ITS ALLOYS. 3 Aug 61 [184]p. 51 refs. MCL-925 /1+2.
Order from OTS or SLA $13.00 61-28493

Unedited rough draft trans. of mono. Svarka Titana i Ego Splavov, Moscow, 1959, 135p.

The illustrations in this report will not reproduce well.

DESCRIPTORS: *Welding, *Titanium, *Titanium alloys, Production, Chemical analysis, Impurities, Welded joints, Heat treatment, Arc welding, Gases, Welding fluxes, Slags, Professional personnel, Soldering, Chemical engineering, Metallurgy.

This manual presents the basic properties and methods of producing titanium and its alloys. The effect composition of alloys and harmful impurities upon weldability features of heat processes during welding, the control of structure and properties of welded joints and the principles of choosing the conditions of welding and heat treatment are discussed. The book is intended for scientific workers and factory engineers and technicians working in the area of welding, and developing alloys of titanium and their use for welded designs.

Spirkov, Alexander.
AN X-RAY STUDY OF PLASTICALLY FORMED KOVAR ALLOYS. [1961] 8p. 7 refs.
Order from SLA $1.10 61-20198

Trans. of Hutnicke Listy (Czechoslovakia) 1959, v. 14, no. 4, p. 316-319.

DESCRIPTORS: Alloys, Lattices, Deformation, Reduction, Crystals, Crystal structure, Phase studies, Stability, *X-rays, Alpha particles, Plasticity, Stresses.

The decrease in the values of the defect exponent Bp for the alpha phase with progressive forming may be explained by the fact that only a portion of the deformation energy is used up for the growth of lattice defects, and the remainder for the formation of further alpha phase. The variation in the defect exponents of the two phases may also be unequivocally explained according to Wood on the principle of the existence of an upper and a lower limit for the size of the crystals of a given phase. The alpha phase content increases with reduction. A (simplified) criterion of the stability of a Kovar alloy is the alpha phase content at a given degree of forming. One Kovar alloy is then more stable than another if the increase in the alpha phase in it is smaller at a given reduction. (Author)

Thanheiser, G. and Paulus, R.
INVESTIGATIONS OF THE EFFECT OF THE VAPORISATION OF IRON ON THE DETERMINATION OF OXYGEN IN FERROTUNGSTEN BY THE HOT-EXTRACTION METHOD. [1961] 22p. (7 figs. omitted) 15 refs.
Order from SLA $2.60 61-18566

Trans. of Kaiser-Wilhelm-Institut für Eisenforschung [Dusseldorf]. Mitteilungen (Germany) 1940, v. 22, no. 14, p. 217-228.

DESCRIPTORS: Vaporization, *Iron, Oxygen, Determination, *Iron compounds, *Tungsten, Processing, Chemical analysis, X-rays, Vacuum apparatus, Tungsten compounds, Carbides.

Vlasov, K. A.
THE PROBLEM OF RARE ELEMENTS AND THE NATIONAL ECONOMY. 25 Sep 61 [13]p. JPRS: 10280.
Order from OTS or SLA $1.60 61-28717

Trans. of Akademiya Nauk SSSR. Vestnik, 1961 [v. 31] no. 1, p. 10-18.

Portions of this report will not reproduce well.

DESCRIPTORS: Economics, *Chemical elements, *Transition elements, Metals, *Rare earth elements, Metallurgical laboratories, Industrial research, Physical properties, Chemical properties, Chemical engineering.

Vul'f, V. K.
TERNARY METAL COMPOUNDS. 13 Feb 61 [51]p. (13 figs. 21 tables omitted) 174 refs. MCL-724; AD-257 695.
Order from OTS or SLA $5.60 61-23886

Unedited rough draft trans. of #Uspekhi Khimii (USSR) 1960, v. 29, no. 6, p. 774-785.

DESCRIPTORS: *Phase studies, *Metallic compounds, Crystal structure, Lattices, Microstructure, Physical properties, Crystallization, Borides, Carbides, Silicides, Nitrides, Electrical properties, Hardness, Mechanical properties, Corrosion, Heat resistant alloys, *Intermetallic compounds, Solid state physics

Contents:
General features of ternary metal compounds
Ternary Kurnakov phases
Valent ternary metal compounds
Electronic ternary metal compounds
Ternary Laves phases
Ternary nickel-arsenide phases
Ternary interstitial phases
Properties and practical application of ternary met compounds

Wahlster, M.
METALLURGY OF THE REDUCTION PROCESSES TAKING PLACE IN THE ROTARY KILN: DEVELOPMENT OF A LABORATORY KILN. Oct 61.
Order from BISI £ 6 BISI-2158

Trans. of Tech[nische] Mitt[eilungen] Krupp (West Germany) 1959, v. 17, Dec, p. 330-342.

DESCRIPTORS: Metallurgy, Reduction, *Laboratory furnaces, Ores, Fuels, Processing, *Iron, *Rotating structures.

Wendler, Friedrich and Schreiner, Horst.
THE THEORY OF SINTERING WITH REGARD TO EFFECTS IN POWDER METALLURGICAL PRODUCTION OF THERMOELECTRIC MATERIALS. II. EXPERIMENTAL METHODS AND EXPERIMENTAL DATA. [1961] [16]p. 45 refs.
Order from SLA $1.60 61-20754

Trans. of Zeit[schrift] für Metallkunde (West Germany) 1961, v. 52, no. 4, p. 224-228.

DESCRIPTORS: *Sintering, *Powder metallurgy, Theory Production, Effectiveness, *Thermoelectricity, Semiconductors, Metals, Powder alloys, Grains (Metallurgy).

Ferrous Metals

Belov, V. M. and Kazennov, S. A.
EQUIPMENT FOR THE PRESSURE DIE CASTING OF STEEL UNDER VACUUM [Oborudovanie dlya Lit'ya Stali pod Davleniem s Primeneniem Vakuuma]. Oct 61, 2400 words.
Order from BH $7.80 HB-4917

Trans. of Liteinoe Proizvodstvo (USSR) 1958, no. 11, p. 7-8.

DESCRIPTORS: *Vacuum apparatus, *Dies, Cast steel, *Castings, *Steel, Machines, Design, Operation, Maintenance, Pressure, Production.

Berglund, T.
GRAIN-SIZE CHARTS FOR FERRITIC AND AUSTENITIC STRUCTURES. [1961] 15p. 6 refs.
Order from SLA $1.60 61-18792

Trans. of Jernkontoret [Stockholm]. Annaler (Sweden) 1953 [v. 137] no. 11, p. 767-784.

DESCRIPTORS: *Grains (Metallurgy), *Austenite, *Steel, *Crystal structure, Classification, Microstructure, Brass, *Ferrites, Copper, Copper alloys

New charts for the JKM classification (the grain-size classification of Jernkontoret for microstructures) have been prepared for ferrite, low carbon steel and austenite. The charts depict the leading grain-size classes JKM 10-13 at a linear magnification of x100. An examination of the relation between the JKM classification and the ASTM classification for steel and brass has been carried out. (Author)

Bogdandy, L. von.
SINTERING, DEGASIFICATION, REDUCTION. Pt. 1 of the Reaction Kinetics in Iron and Steel Making. [1961] 25p.
Order from ATS $38.25 ATS-78N56G

Trans. of Arch[iv für das] Eisenhüttenw[esen] (West Germany) 1961, v. 32, no. 5, p. 275-286.

DESCRIPTORS: *Reaction kinetics, *Iron, *Steel, *Sintering, Reduction, *Degasification.

Bogdandy, L. von.
VAPORIZING AND REFINING. Pt. 2 of the Reaction Kinetics in Iron and Steel Making. [1961] 19p.
Order from ATS $27.40 ATS-06N57G

Trans. of Arch[iv fur das] Eisenhuttenw[esen] (West Germany) 1961, v. 32, no. 5, p. 287-296.

DESCRIPTORS: *Reaction kinetics, *Iron, *Steel, Production, Vaporization, Purification.

Brunn, F.
A CONTRIBUTION TO THE PROBLEM OF PIN HOLE POROSITY (SUBCUTANEOUS BLOWHOLES) IN STEEL CASTINGS. [1959] [12]p. 5 refs.
Order from SLA $1.60 61-20686

Trans. of Giessereitechnik (Germany) 1958, v. 4, Dec, p. 307-310.
Another trans. is available from BISI £ 3 5s as BISI-1271 [1959].

DESCRIPTORS: *Steel castings, Porosity, Castings, Microstructure, Microanalysis, Metallurgical analysis.

Chvorinov, N.
CAN WE PRODUCE ELECTRIC FURNACE STEEL WITH LESS THAN TWO ML HYDROGEN PER HUNDRED GRAMS? Oct 61, 2200 words.
Order from HB $5.90 HB-5235

Abridged trans. of Revue de Metallurgie (France) 1961, v. 58, no. 3, p. 271-275.

DESCRIPTORS: *Steel, *Oxygen, *Hydrogen, Induction heating, Production, *Electric arcs, Open hearth furnaces, Chemical analysis, Ores, Refineries, Thermodynamics, Water vapor, Atmosphere, Slags, Mixtures, Economics.

Cornelius, H. and Bungardt, W.
INVESTIGATION ON THE SUITABILITY OF HEAT-RESISTANT MATERIALS FOR COMBUSTION ENGINES, PT. 3. [1961] 5p. (6 tables 4 figs. omitted) 5 refs.
Order from SLA $1.10 61-18855

Trans. of Luftfahrtforschung (Germany) 1941, v. 18, no. 8, p. 275-279.

DESCRIPTORS: *Internal combustion engines, Heat resistant alloys, *Steel, *Austenite, Industrial research, Production, Chemical analysis, Metallurgy, Properties, Tests.

Delfos, F. P.
STEEL PRODUCTION AT THE SOUTH AFRICAN IRON AND STEEL INDUSTRIAL CORPORATION LTD (ISCOR) (WITH DISCUSSION). Nov 61.
Order from BISI £6 10s BISI-2468

Trans. of Stahl [und] Eisen (West Germany) 1961, v. 81, 22 June, p. 849-858.

DESCRIPTORS: *Steel industry, South Africa, Steel, Production, Iron.

Fischer, W. A. and Hoffmann, A.
THE DECOMPOSITION OF WUSTIT (IN THE SCALE-LAYER OF IRON SAMPLES). [1961] 30p.
Order from AC $35.00

Trans. of mono. Wustit Zersetzung, communication from the Max-Planck Institute, n. d.

DESCRIPTORS: Iron, Oxidation, *Wustite, Decomposition, Temperature, Manganese compounds, Oxides, Chemical reactions.

Of the scale-layers, which were formed by oxidation of purest iron, Armco-iron and unalloyed steel between 750 and 1050°, of X-ray and microscopic research in the decomposition of Wustit in dependence on temperatures held at from 250 to 550°. Influence of manganese (II)-oxide on the decomposition of Wustit. Interpretation of the course of decomposition. (AC abstract) (See also 60-12384 and 59-19955)

Knorr, W.
EFFECT OF SULFUR CONTENT ON AMOUNT OF TOP CROP FROM 6.5-TON BOTTOM-POURED RIMMED SOFT PLAIN-CARBON STEEL INGOTS. Oct 61, 1500 words.
Order from HB $4.40 HB-5271

Trans. of Technische Mitteilungen Krupp (West Germany) 1961, v. 19, no. 2, p. 37-39.

DESCRIPTORS: Sulfur, Castings, *Steel castings, Chemical analysis, Drawing (Machine processing), Manufacturing methods, Carbon.

Kowalewski, M. and others.
STUDY OF PRODUCTION OF PELLETS FROM SINTER MIX (FINES PREPARATORY TO STRAND SINTERING). Oct 61, 4700 words.
Order from HB $12.80 HB-5245

Trans. of Hutnik (Poland) 1961, v. 28, no. 5, p. 183-193.

DESCRIPTORS: *Pellets, Production, Additives, *Sinters, Mixtures, Sintering, Ores, Iron, Pyrites, Blast furnaces, Particles, Mechanical properties, Disks, Sintered alloys, *Sintered iron, *Sintering furnaces, Welding fluxes, Fractography.

Krautmacher, H.
COLD ROLLING AND DRAWING HIGH-STRENGTH Z-SECTION WIRES FOR (FULLY LOCKED) ROPES. Dec 61.
Order from BISI £6 15s BISI-2314

Trans. of Stahl [und] Eisen (West-Germany) [1956] v. 76, 23 Aug, p. 1085-1099.

DESCRIPTORS: *Steel wire, Wire, Test equipment

Krekeler, K. A.
WELDING TESTS ON STEEL WITH A YIELD POINT INCREASED BY SUB-MICROSCOPIC INCLUSIONS: WITH DISCUSSION AND INCLUDING DISCUSSION AND REFERENCES ON PAPERS BY NEHL, BORN AND KOCH. [1961] [25]p. 45 refs.
Order from SLA $2.60 61-20602

Trans. of Stahl und Eisen (West Germany) 1952 [v. 72] [no. 21] p. 1278-1285.

DESCRIPTORS: *Steel, Mechanical properties, Welds, *Welding, *Inclusions, Microanalysis, *Microstructure, Stresses, Bridges, Construction, Fatigue (Mechanics)

Leclerc, J. and Goureau, J.
DETERMINATION OF NOZZLE DIAMETERS AND TEEMING SPEEDS FOR THE DIRECT POURING OF FLAT RIMMING INGOTS FOR DEEP DRAWING. [1961] 11p.
Order from SLA $1.60 61-18739

Trans. of Revue de Métallurgie (France) 1958, v. 55, [no. 8] p. 710-715.

DESCRIPTORS: *Steel castings, Processing, *Nozzles Design, Drawing (Machine processing), Metallurgy, France, Castings.

An approximation is suggested as a basis for determining the nozzle diameter to be adopted as a function of the type of ingot to enable one to adjust the casting rules whenever a new type of ingot mould is introduced.

Leroy, P. and Lara, Cohen, G. de
A FUNDAMENTAL, PRACTICAL, HYDRODYNAMIC STUDY OF BATH MOVEMENTS IN A BOTTOM-BLOWN CONVERTER. II. STUDY OF EJECTIONS FROM A BOTTOM-BLOWN CIRCULAR CONVERTER, STARTING FROM A STUDY OF THE MASS OSCILLATIONS OF THE BATH. [1961] [30]p. 11 refs.
Order from SLA $2.60 61-18667

Trans. of Revue de Métallurgie (France) 1958, v. 55, no. 2, p. 186-200.

DESCRIPTORS: *Steel, Processing, *Hydrodynamics.

Lueg, Werner and Schultze, Fritz.
INFLUENCE OF FORWARD TENSION AND BACKWARD TENSION IN THE COLD-ROLLING OF STRIP STEEL IN A TWELVE-HIGH COLD-ROLLING MILL. [1961] [21]p. (8 tables 2 figs. omitted) 7 refs.
Order from SLA $2.60 61-18557

Trans. of Kaiser-Wilhelm-Institut für Eisenforschung, Dusseldorf. Mitteilungen (Germany) 1940 [v. 22] no. 7, p. 93-108.

DESCRIPTORS: *Steel, Processing, Tensile properties, *Rolling mills, Tests.

Mazanek, E. and Markiewicz, W.
ON THE REDUCIBILITY OF LUMP ORES. Oct 61, 1400 words.
Order from HB $3.90 HB-5201

Extract trans. of Hutnik (Poland) 1960, v. 27, no. 4, p. 127-137.

DESCRIPTORS: *Ores, *Reduction, *Iron, Poland, Physical properties, Chemical analysis, Sinters, Porosity, Waste gases, Temperature.

Patterson, Wilhelm.
CONTRIBUTION OF THE EFFECT OF PAN ADDITIONS ON CAST IRON: DEGREE OF MATURITY AND RELATIVE HARDNESS AS QUALITY CHARACTERISTICS (Beitrag zur Wirkung von Pfannenzusätzen auf Gusseisen: Reifegrad und Relative Härte als Qualitätsmerkmale). [1961] [54]p. (foreign text included) 26 refs.
Order from SLA $5.60 61-20829

Trans. of Giesserei (West Germany) 1959, v. 46, no. 11, p. 289-301.

DESCRIPTORS: *Cast iron, Hardness, Mechanical properties, Graphite, Melting, Additives, Chemical analysis, Iron.

Data confirm the concept that the mechanical properties of the grey cast iron are determined primarily by the graphite type and not by the length of the graphite veins, that can be found in the metallographic picture. High degrees of maturity and low relative hardness values are connected with the A-graphite. A-graphite presumes a melt rich in foreign seeds. The mechanical properties are finally determined by the foreign seed phenomenon during the entire melting process, consequently by the time-temperature curve during the course of melting. (Author)

Pejcoch, O. and Zidek, M.
TYPES AND ORIGINS OF DEFECTS IN ROUND BILLETS USED IN ROLLING SEAMLESS TUBES. Nov 61, 25 refs.
Order from BISI £10 BISI-2343

Trans. of Hutnik (Czechoslovakia) 1961, v. 11, no. 2, p. 59-74.

DESCRIPTORS: Steel tubing, Castings, *Steel castings, *Inclusions.

Plockinger, E. and Borowski, K.
KRUPP-RENN PROCESS GRANULES AND SPONGE IRON AS COOLANTS IN THE BASIC OXYGEN (LD) PROCESS. Aug 61, 5500 words.
Order from HB $14.40 HB-5069

Trans. of Technische Mitteilungen Krupp (West Germany) 1960, v. 18, no. 1, p. 1-8.

DESCRIPTORS: *Iron, Ores, Processing, Sponge metals, *Steel, Coolants, Production, Blast furnaces, Oxygen

Pochwisnew, A. N.
THE METALLURGICAL EVALUATION OF IRON ORES AND OTHER RAW MATERIALS. [1961] 8p. 2 refs.
Order from SLA $1.10 61-20096

Trans. of Metallurgie (Germany) 1955, v. 5 [no. 3] p. 82-85.

DESCRIPTORS: *Iron, *Ores, *Minerals, *Metallurgical analysis, Cast iron, Coke, Fuels, Consumption, Slags, Blast furnaces, Equations, Numerical methods and procedures

Pomp, Anton and Niebch, Georg.
THE BRIGHT-ANNEALING OF COLD-DRAWN DEEP-DRAWING STEEL STRIP IN THE CONTINUOUS ANNEALING FURNACE. 1941 [27]p. (38 figs. omitted) 16 refs.
Order from SLA $2.60 61-18852

Trans. of Kaiser-Wilhelm-Institut für Eisenforschung [Dusseldorf]. Mitteilungen (Germany) 1940, v. 22, no. 8, p. 121-136.

DESCRIPTORS: Annealing, Drawing (Machine processing), *Steel, Rolling mills, Electric furnaces, Industrial equipment, Production.

Pomp, Anton and Niebch, Georg.
THE LOSS OF STRENGTH WITH TIME DUE TO THE ANNEALING OF COLD-ROLLED STEEL STRIP FOR DEEP-DRAWING OPERATIONS. [1961] [15]p. (49 figs. omitted) 13 refs.
Order from SLA $1.60 61-18858

Trans. of Kaiser-Wilhelm-Institut für Eisenforschung [Dusseldorf]. Mitteilungen (Germany) 1940, v. 22, no. 8, p. 109-119.

DESCRIPTORS: Drawing (Machine processing), Annealing, Rolling mills, *Steel, Mechanical properties, Manufacturing methods.

Prolingheuer, Karl-Heinz.
STEELWORKS: CRANES FROM THE WORK STUDY POINT OF VIEW. [1959] [9]p. 4 refs.
Order from SLA $1.10 61-20619

Trans. of Fördern und Heben (West Germany) 1958 [v. 8] Feb, p. 58-61.
Another trans. is available from BISI £4 as BISI-1269, 13 Mar 59.

DESCRIPTORS: *Hoists, Tests, *Steel industry, Industrial equipment.

Pusch, R. and Schüller, H.-J.
A FRINGE-LIKE EUTECTOID IN THE TRANSFORMATION STRUCTURE OF HEAT-RESISTANT STEELS HAVING A LOW OR MEDIUM ALLOY CONTENT. 10 Aug 58 [25]p. 1 ref.
Order from SLA $2.60 61-18380

Trans. of Archiv für das Eisenhüttenwesen (Germany) 1958, v. 28, no. 1, p. 65-72.

DESCRIPTORS: *Heat resistant alloys, *Eutectics, *Steel, Alloys, Phase transitions, Metallurgy, Electron microscopy, Chemical analysis, Transformations

Schinn, R.
EXPERIENCE WITH NONDESTRUCTIVE TESTING OF STEEL CASTINGS FOR STEAM TURBINES. Oct 61, 1200 words.
Order from HB $3.60 HB-5349

Trans. of Materialprüfung (West Germany) 1960, v. 2, no. 7, p. 233-236.

DESCRIPTORS: *Non-destructive testing, *Steel castings, *Steam turbines, Ultrasonics, Thermal stresses, Castings, Radiographic analysis.

Schuermans, R. and Neste, J. Van.
RAW (UNFIRED) CONVERTER BOTTOMS AT THE SERAING BASIC BESSEMER STEELWORKS, COCKERILL-OUGREE. [1961] [17]p.
Order from SLA $1.60 61-18745

Trans. of Revue Universelle des Mines (France) 1958 [v. 101, ser. 9, v. 14] Aug, p. 270-279.

DESCRIPTORS: *Steel, Processing, Manufacturing methods, Belgium.

The authors describe the new method of bottom manufacture in use at the basic Bessemer steelworks of Cockerill-Ougree at Seraing. With this new method, the bottoms are placed in the converter without previous firing in the dolomite shop; they are subsequently fired together with the joint. The authors give various details about the preparation of the mould, the manufacture of the dolomite mix and the making of the bottoms. Average bottom life has been increased. The authors finally examine the effect of the length of ageing on bottom life. The better life of raw bottoms can probably be attributed to higher residual carbon and to lower porosity than with fired bottoms. (Author)

Stauffer, W. and Keller, A.
AUSTENITIC STEEL CASTINGS FOR THE CONSTRUCTION OF GAS- AND STEAM-TURBINES. [1961] [29]p. 6 refs.
Order from SLA $2.60 61-20689

Trans. of Giesserei (West Germany) 1958, v. 45, 24 Apr, p. 229-239.
Another trans. is available from BISI £6 10s as BISI-1286 [1959].

Portions of this report will not reproduce well.

DESCRIPTORS: *Steel castings, *Gas turbines, *Steam turbines, Materials, Creep, Welding, Mechanical properties.

Tretyakov, F. E. and Freidlina, E. Yu.
WELDING OF EI 712 STEEL (12KH2NVFA). Nov 60 [7]p. MCL-708/4; AD-257 692.
Order from OTS or SLA $1.10 61-27411

Trans. of [Russian language] article from an unidentified source, n. p., n. d.

DESCRIPTORS: USSR, *Steel, *Welding, Welded joints, Welds, Arc welding, Mechanical properties, Welding rods, Argon, Carbon dioxide, Heat treatment, Chemical analysis.

The welding of steel EI 712, which contains approximately 2% chromium, 1% nickel, 1% tungsten and 0.2% vanadium, is discussed. This steel, in the hardened or normalized state, is well welded by manual arc welding, argon arc welding, automatic welding in an argon and carbon dioxide medium and requires no subsequent heat treatment.

Wiegand, H. and Reiner, H.
CREEP-TESTING AT TEMPERATURES ABOVE 500°C. USING MULTISPECIMEN CREEP TESTERS. I. MULTISPECIMEN CREEP TESTERS. II. FACTORS AFFECTING THE CREEP BEHAVIOUR OF HEAT-RESISTANT MATERIALS. [1961] [28]p. (30 figs. omitted) 25 refs.
Order from SLA $2.60 61-20680

Trans. of Metall (West Germany) 1957, v. 11 [no. 5] p. 357-361 and 1958, v. 12 [no. 9] p. 803-810.
Another trans. is available from BISI £7 as BISI-1156, 13 Mar 59.

DESCRIPTORS: Tests, *Creep, Temperature, *Heat resistant alloys, *Steel, *Refractory materials, Mathematical prediction, Metallurgical analysis, Austenite.

Irregularities in the time-elongation curves were found and the causes of such deviations were investigated. The results indicate that it is not the technique of measurement, the apparatus used, or other experimental factors, which account for the irregularities, but that the scatter in the results is due to factors inherent in the material itself. The creep behaviour of heat-resistant materials required for the construction of long-life plants, should be investigated for experimental periods of at least 10,000 to 20,000 hours, and if possible, for periods of up to 100,000 hours. (Author)

Light Metals

Adamovich, L. P. and Yutsis, B. V.
PHOTOMETRIC DETERMINATION OF SMALL QUANTITIES OF BERYLLIUM IN ALUMINUM ALLOYS (Fotometricheskoe Opredelenie Malykh Kolichestv Berilliya v Alyumninevykh Splavakh]. [1961]
Order from MT £2 2s MT Trans-187

Trans. of Ukrainskii Khimicheskii Zhurnal (USSR) 1956, v. 22, no. 4, p. 523-526.

DESCRIPTORS: *Aluminum alloys, *Beryllium, Determination, Photometers, Chemical analysis, Casting.

Leber, Ad.
THE SYSTEM ALUMINUM-THORIUM (Das System Aluminum-Thorium). [1961].
Order from AC $12.00

Trans. of Z[eitschrift] f[ür] Anorg[anische] Chemie (Germany) [1927] v. 166 [no. 1/3] p. 16-26.
Another trans. is available from SLA mi$2.40, ph$3.30, as AEC-tr-3722 [1959] 12p.

DESCRIPTORS: *Aluminum, *Thorium, *Alloys, Synthesis, Microstructure, Thermodynamics, Crystals, Separation.

This paper covers the preparation of aluminum-thorium alloys, analysis of the thorium alloys, thermal investigation, microscopic structural investigations, isolations of the crystals, a new method for isolating crystals, etc. (AC abstract)

Structural Metallurgy and Corrosion

SOVIET HEAT-RESISTANT ALLOY EI-617.
29 Apr 60 [4]p. 6 refs. AF 1419591.
Order from OTS or SLA $1.10 61-28359

Trans. from USSR publications 1957-58.

DESCRIPTORS: *Nickel alloys, *Heat resistant alloys, Chromium alloys, Gas turbines, Turbine blades, Titanium, Aluminum, Molybdenum, Tungsten, Vanadium, Boron.

Alloy EI-617 is a complex wrought nickel-base alloy containing 15% chromium and lesser amounts of titanium, aluminum, molybdenum, tungsten, vanadium and boron. Chemical composition is C 0.08%; Cr 15.00%; Ni-base; Fe not more than 5%; Ti 2%; Al 2%; Mo 3%; W 7%; B 0.008% and V 0.3%. Optimum heat resistance is attained by double hardening at 1200°C for 12 hours and at 1050°C for 4 hours, and aging at 800°C for 16 hours, with air cooling. It is recommended for buckets and nozzle blades of gas turbines.

SOVIET HEAT-RESISTANT ALLOY Kh15N35VMT (EI-692). 29 Feb 60 [4]p. 3 refs. AF 1419501.
Order from OTS or SLA $1.10 61-28350

Trans. from USSR publications 1958-60.

DESCRIPTORS: *Heat resistant alloys, *USSR, *Austenite, *Chromium alloys, *Nickel alloys, Tungsten alloys, Titanium alloys, Molybdenum alloys, Chemical analysis, Heat treatment, Alloys.

Alloy EI-692 is a low-carbon austenitic alloy containing 15% Cr and 35% Ni, additionally alloyed with tungsten, molybdenum and titanium. Its composition is C 0.12%; Si 0.6%; Mn 1.0%; Cr 14-16%; Ni 32-38%; Mo 2.3-3.0%; W 2.3-3.0%; Ti 1.1-1.5% S and P not more than 0.020%. This alloy is supplied in rolled sections and forgings and is intended for extended applications at 600-700°C. It is recommended for turbine blading operating at temperatures of 650-700°C, with a service life of up to 100,000 hours, and for fasteners operating at temperatures of 650-680°C, with a service life of 10,000 hours.

Bäumel, A.
EFFECT OF CALCIUM CHLORIDE ON THE CORROSION OF STEEL IN CONCRETE. [1961] 12p. 5 refs.
Order from SLA $1.60 61-20560

Trans. of Beton Herstellung-Verwendung (West Germany) 1960, v. 10, no. 6, p. 256-259.

DESCRIPTORS: *Reinforced concrete, Concrete, Steel, Corrosion inhibition, *Calcium compounds, *Chlorides, Corrosion, *Corrosion research, Reinforcing steel.

Bogachev, I. N. and Sachavskii, A. F.
EFFECT OF ALPHA- AND EPSILON PHASES ON THE STRAIN HARDENING OF AUSTENITIC STEELS WHILE BEING WORKED. Aug 61, 2800 words.
Order from HB $7.90 HB-5145

Trans. of Izvest[iya] V[ysshikh] U[chebnykh] Z[avedenii]. Chern[aya] Met[allurgiya] (USSR) 1961, no. 2, p. 100-108.

DESCRIPTORS: *Austenite, *Steel, Processing, Hardening.

Getsov, L. B., Zhirnov, D. F. and others.
EFFECT OF STRUCTURES ON THE HEAT-RESISTING PROPERTIES OF ALLOYS. [1961] [9]p. (5 figs. omitted). [DSIR LLU] M 3222.
Order from OTS or SLA $1.10 61-27628

Trans. of #Metalloved[enie i] Term[icheskaya] Obrab[otka] Met[allov] (USSR) 1960, no. 9, p. 12-16.

DESCRIPTORS: *Heat resistant alloys, *Steel, Crystal structure, *Grains (Metallurgy), Fracture (Mechanics) Rupture, Mechanical properties, Tensile properties, Thermal stresses.

A procedure was developed for artificially growing grains up to 3-5 mm in size for steel EI481 and up to 1-2 mm in size for alloy EI437B. The presence of a coarse-grained recrystallised structure in forgings and specimens with artificially-grown grains substantially reduces the stress-rupture properties of steel EI481 although its short-time mechanical properties at room and elevated temperatures remain unaffected. For alloy EI437B, there is a marked drop in the values of ultimate tensile strength, elongation and reduction of area at 20 and 700°C for specimens with a coarse-grained structure; there is, however, no clear relation between the stress-rupture properties of this material and grain size. (Author)

Kedrin, I. D.
MICROEXAMINATION OF MARTENSITE TRANSFORMATION IN TITANIUM-STABILIZED 18% Cr-9% Ni STEEL DURING SUBZERO TREATMENT. Aug 61, 1200 words.
Order from HB $3.60 HB-5240

Trans. of Izvest[iya] V[ysshikh] U[chebnykh] Z[avedenii]. Chern[aya] Met[allurgiya] (USSR) 1961, no. 4, p. 89-92.

DESCRIPTORS: *Martensite, *Steel, *Titanium alloys, *Chromium alloys, *Nickel alloys, Phase transitions, Microanalysis, Temperature, *Austenite.

Kessler, H.
PROCESS FOR THE IMPROVEMENT OF VARIOUS PROPERTIES OF GaMg-ALLOYS. [1961] 6p.
Order from ATS $10.30 ATS-29N54G

Trans. of Z[eitschrift für] Metallk[unde] (West Germany) 1958, v. 49, no. 6, p. 312-316.

DESCRIPTORS: *Gallium alloys, *Magnesium alloys, Processing, *Aluminum alloys, Alloys.

Körber, Friedrich.
THE RELATIONSHIPS BETWEEN THE HEAT OF FORMATION, THE STRUCTURE AND THE PROPERTIES OF COMMERCIALLY IMPORTANT ALLOYS.
Rept. no. 320 of the Steelworks Committee of the Verein Deutscher Eisenhüttenleute. [1961] 33p. 7 refs.
Order from SLA $3.60 61-18651

Trans. of unidentified mono. (Communication from the Kaiser Wilhelm Institute for Iron and Steel Research, Düsseldorf) n.d.

DESCRIPTORS: *Heat of formation, Iron alloys, Silicon alloys, Nickel alloys, Cobalt alloys, Casting, *Properties, Heat of reaction, *Crystal structure, Aluminum alloys, Copper alloys, Tin alloys, Magnetic alloys, Steel, Thermodynamics, Transition temperature, Thermochemistry, Metallurgical analysis, *Heat resistant alloys, Metals, Alloys, Bonding, Tests, *Microstructure, Industrial production, Alloys.

A description is given of an experimental method for the direct determination of the heats of formation by casting metals together with one another, and this is followed by a discussion of the values so obtained for the binary alloys: iron-silicon, cobalt-silicon, nickel-silicon; iron-aluminium, nickel-aluminium, cobalt-aluminium, copper-aluminium; cobalt-tin, nickel-tin and copper-tin. Relationships are pointed out between the constitutional diagrams and the properties of the respective alloys. The ternary alloys iron-nickel-aluminium (Mishima's magnetic steel) and iron-cobalt-aluminium are dealt with in a similar way. Certain basic conclusions are drawn from the results of the experiments, and their metallurgical significance is discussed. (Author)

Löhberg, Karl.
CORROSION OF INTERMETALLIC COMPOUNDS [Korrosion Intermetallischer Verbindungen]. [1961] 8p. (5 tables. 8 refs. 4 graphs omitted).
Order from SLA $1.10 61-20752

Trans. of Zeitschrift für Metallkunde (West Germany) 1950, v. 41 [no. 2] p. 56-[59].

DESCRIPTORS: *Intermetallic compounds, Aluminum compounds, Magnesium compounds, *Corrosion, Corrosion inhibition.

Morsing, Johan.
LABORATORY TESTS ON THE PROGRESS OF CORROSION OF STEEL PLATE ALTERNATELY IN CONTACT WITH WATER AND PETROL [AND] THE DETERMINATION OF OXYGEN IN PETROL. [1961] 25p. (13 figs. omitted) 8 refs.
Order from SLA $2.60 61-18487

Trans. of Statens Provningsanstalt [Stockholm. Meddelande] (Sweden) 1942, no. 87, p. 3-35.

DESCRIPTORS: *Corrosion, *Steel, Metal plates, Water, Oxygen, Petroleum, Determination, Test facilities, Sweden, Sheets, Metallurgical laboratories, Chemical analysis.

Shteynberg, M. M., Sokolkov, Ye. N., and Varaksina, M. N.
CONCERNING THE TENDENCY OF METALS TOWARD BRITTLE FRACTURE (K Voprosu o Sklonnosti Metallov k Khrupkomu Razrusheniyu). 3 Nov 60 [11]p. 3 refs. MCL-568/1.
Order from OTS or SLA $1.60 61-19393

Rough draft trans. of Ural'skiy Politekhnicheskiy Institut [Sverdlovsk]. Trudy (USSR) 1958, v. 68, p. 54-58.

DESCRIPTORS: *Steel, Rupture, *Fracture (Mechanics), Deformation, Iron alloys, Silicon alloys, Molybdenum alloys, Heat treatment, *Heat resistant alloys, Temperature

Plastic deformation accomplished by uniaxial static tension causes a significant increase in tensile strength. The intensity of this increase depends on the composition of the alloy and its initial structure. Data on the dependence of tensile strength on prior plastic deformation provide the possibility of determining tensile strength for certain industrial brands of steels by extrapolation.

NUCLEAR PHYSICS AND NUCLEAR CHEMISTRY

Fedorov, E. K. and others.
SOVIETS FIND FAULTS WITH AMERICANS AT GENEVA ATOM BAN CONFERENCE (THESE OBSTACLES MUST BE OVERCOME) (Eti Prepyatstviya Nado Preodolet). 23 Feb 60 [7]p. AF 1419473.
Order from OTS or SLA $1.10 61-28330

Trans. from Pravda [Moscow] (USSR) 1960, [no. 39(15163)] p. 4.

DESCRIPTORS: *Atomic bombs, Conferences.

Keller, R., Dick, L., and Fidecaro, M.
A SOURCE OF POLARIZED PROTONS: ACTUAL STATE OF CONSTRUCTION, tr. by B. Harvey. Aug 60, 55p. 20 refs.
Order from OTS or SLA $5.60 UCRL Trans. 571

Trans. of C[entre] E[uropeen de] R[echerche] N[ucleaire] (Switzerland) Rept. 60-2, 29 Jan 60.

DESCRIPTORS: *Proton accelerators, Accelerators, *Cyclotrons, Construction, *Ion sources, *Protons, Polarization, Hydrogen, Dissociation, Atoms, Particle beams, Magnetic separation, Laval nozzles, Nozzles, Effectiveness.

Isotope Separation

Klemm, A.
ISOTOPE SEPARATION. [1961] [4]p. 2 refs.
Order from SLA $1.10 61-18815

Partial trans. of Atomwirtschaft (West Germany) 1958, v. 3, p. 341-342.

DESCRIPTORS: *Uranium, *Isotope separation, Centrifuges, Centrifuge separation, Germany.

Spitsyn, V[ikt] I. [Mikhailenko, I. E. and others].
ETUDE DE L'ACTION DU RAYONNEMENT EXTERNE SUR LE TAUX D'ÉCHANGE ISOTOPIQUE DE SULFURE DANS LE SYSTÈME K_2SO_4-SO_3 À HAUTES TEMPÈRATURES [Investigation of the Influence of External Radiation Upon the Rate of the Isotopic Exchange of Sulfur in the System K_2SO_4-SO_3 at High Temperature] tr. by Kefeli. 7 May 61 [10]p. (refs. omitted). CEA Trans. no. R 1313 (text in French).
Order from OTS or SLA $1.10 61-28677

Trans. in French of Akad[emiya] Nauk SSSR. Dokl[ady] 1960, v. 131, no. 2, p. 360-363.

DESCRIPTORS: Betatrons, *Isotope separation, *Exchange reactions, Ion exchange, *Electron bombardment, *Sulfur, Sulfates, Sulfites, *Potassium compounds, Electrons, Beta particles

The external irradiation of the solid phase of the K_2SO_4-SO_3 system by means of electrons exerts no influence upon the rate of isotopic exchange in the case of a dose of the order of 10^{15} ev/10 min. With an increase of the dose to 10^{16} or 10^{17} ev/10 min, an increase in the exchange yield occurs, which is directly proportional to the logarithm of the dose. The β-radiation of the radioactive K_2SO_4 exerts a much more considerable influence upon the exchange rate than external radiation. The action of the external β-radiation is explained by the excitation of the sulfate-ions and individual atoms. Likewise, also an activation of SO_3 by the formation of ions occurs. This action is, however, weak. The exchange is increased by it by about 40%, and practically does not change under the experimental conditions chosen (1 to 2×10^{13} ev/10 min).

Nuclear Engineering and Power

NUCLEAR REACTOR. 5 June 61, 2p. AID Rept. 61-88; AD-257 928.
Order from OTS or SLA $1.10 61-23497

Review from Pravda [Moscow] (USSR) 1961, 18 May, p. 1-2; Pravda Ukrainy (USSR) 1961, 18 May, p. 1; Komsomol'skaya Pravda (USSR) 1961, 19 May, p. 1.

DESCRIPTORS: *Research reactors, USSR, *Fast neutrons, Uranium, Fission, Nuclear physics, Fast reactors.

Contents:
Fast-neutron nuclear reactor. (2 articles)
Subdual of nuclear fire.

Kikoin, I. K., Dmitrievskii, V. A. and others.
REACTEUR NUCLEAIRE EXPERIMENTAL A COMBUSTIBLE GAZEUX (UF_6) [Stendovyi Reaktor s Gazoobraznym Delyashchimsya Veshchestvom (UF_6)] [A Test Reactor with Gaseous Fissile Material (UF_6)] tr. by Vinogradoff. Oct 59 [21]p. 3 refs. CEA Trans. no. R 750 (text in French).
Order from OTS or SLA $2.60 61-23753

Trans. in French of #Atom[naya] Energ[iya] (USSR) 1958, v. 5, no. 3, p. 294-302.

DESCRIPTORS: *Test reactors, *Reactor fuels, Combustion, Gas cooled reactors, Gases, Dissociation, Nuclear power plants, Atomic energy, Design, Uranium compounds, Fluorides, Molecules, Stability, Neutron bombardment.

Voronkov, V. S.
NUCLEAR REACTOR AS AN OBJECT OF CONTROL. 21 Mar 61, 2p. AID Repte 61-38; AD-254 407.
Order from OTS or SLA $1.10 61-19622

Abstract trans. of Avtomaticheskoe Regulirovanie Aviadvigatelei: Sbornik Statei (USSR) 1960, v. 2, p. 66-106.
A complete trans. is available from OTS or SLA $5.60 as 61-27260, MCL-842/1 + 2, 23 Mar 61 [56]p.

DESCRIPTORS: *Nuclear power plants, USSR, *Airplane engines, *Power reactors, Design, Aircraft, Nuclear energy, Nuclear physics, Control.

An analysis resulted in the following conclusions. The nuclear reactor with respect to neutron power output is described by a nonlinear differential equation of the seventh order. With respect to disturbances based on the excess multiplication constant (Δk) the reactor is considered as being nonstatic. Positive disturbances result in a continuous unlimited increase in power, while negative disturbances result in a power reduction to zero. Steady-state conditions of a reactor can only be achieved at $\Delta k = 0$. A negative temperature coefficient of reactivity results in a considerable change of reactor properties; the reactor acquires a property of thermal self-regulation. Frequency characteristics of reactors at low frequencies (to approximately 1 1/sec) are determined by delayed neutrons; at high frequencies they are determined by prompt neutrons. The absorptive power of control rods varies nonlinearly with the depth of rod immersion into the reactor core. (Extracted)

PERSONNEL SUPPLIES AND PERSONAL EQUIPMENT

Office of Technical Services, Dept. of Commerce, Washington, D. C.
PROTECTIVE CLOTHING AND OTHER APPAREL. Oct 61, 12p. 154 refs. OTS Selective Bibliography SB-482.
Order from OTS $0.10 OTS SB-482

DESCRIPTORS: *Protective clothing, Clothing, Exposure suits, Pressure suits, *Bibliography.

Lists 154 foreign and domestic references added to the OTS collection during the period 1950 to October 1961. Reports cover research on cold weather clothing, pressure suits, anthropomety, standards for knit underwear, thermal insulation, acid and radiation resistant clothing, laboratory clothing and the like.

PHYSICS

Cherkasov, Yu. A.
APPLICATION OF "FOCAL SCREENING" TO MEASUREMENT OF INDICES OF REFRACTION BY THE IMMERSION METHOD (Oprimenenii "Fokal'nogo Ekranirovaniya" pri Izmereniyakh Pokazatelei Prelomleniya Immersionnym Metodom). [1960] 39p. 14 refs.
Order from OTS or SLA $3.60 60-23739

Trans. of mono. Sovremennye Metody Mineralogicheskogo Issledovaniya Gornykh Porod, Rud i Mineralov (Modern Methods of Mineralogic Investigation of Rocks, Ores and Minerals) Moscow, 1957, p. 184-207.
Another trans. is available from AGI $5.00

DESCRIPTORS: *Minerals, Crystals, Grains (Metallurgy), Inclusions (Metallurgy), *Refractive index, Optics, *Atmospheric refraction, Illumination, Quantitative analysis, Chemical reactions, Solids, Liquids, Microanalysis, Light transmission, Angle of arrival, Microscopy, Radiofrequency filters, *Focusing, Microstructure, Mathematical analysis, Colors, Surfaces, *Optical equipment, *Grilles, Rock, Ores.

Contents:
Refraction of the ray bundle in grains of the immersed specimen. Angular dispersion
Linear deviation of rays on the rear focal plane of the objective. Linear dispersion
Apertural screening
Unilateral screening
Central screening
Directions for the application of apertural screening
Directions for the application of unilateral screening
Directions for the application of central screening
Determination of the indices of refraction of minerals containing inclusions of other crystals or occurring in intergrowths
Determination of the elements of the optical indicatrix with the aid of the dispersion effect
Application of the dispersion coloration to quantitative mineral analysis
Conclusion

Donze, G.
X-RAY DIFFRACTION STUDY OF γ PHASE FORMATION IN U-Mo ALLOYS (Étude par Diffraction des Rayons X de la Formation de la Phase Gamma dans les Alliages U-Mo). [1961] 9p. (8 figs. omitted).
Order from OTS or SLA $1.10 AEC-tr-4241

Trans. of [Commissariat à l'Énergie Atomique] (France) no. CEA-1231, 1959.

DESCRIPTORS: *X-ray diffraction analysis, *Uranium alloys, *Molybdenum alloys, Chemical analysis, Decomposition, Phase studies, *Gamma rays, Transformations, Grains (Metallurgy), Radiation instruments, Metallurgy, Alloys, Thermodynamics.

Duchenko, N. V., Solgalov, G., and Guseinov, A.
UNIVERSITY CONFERENCES: SCIENTIFIC CONFERENCE AT KIEV U., 10-13 JAN 61 [AND] STUDENT CONFERENCE ON PHILOSOPHICAL PROBLEMS IN PHYSICS AT MOSCOW U., 1-3 DEC 60. 25 Oct 61 [12]p. JPRS: 10766.
Order from OTS or SLA $1.60 62-13243

Trans. of Nauchnye Doklady Vysshei Shkoly. Filosofskie Nauki (USSR) 1961, no. 3, p. 189-193.

DESCRIPTORS: Conferences, USSR, *Philosophy, *Physics.

Kondrat'ev, K. Ya. and Ter-Markaryants, N. E.
ON THE REFLECTION OF RADIATION BY THE SEA (Ot Otrazhenii Radiatsii Morem) tr. by A. Pingell. 30 Aug 61, 14p. 8 refs. N R L Trans. no. 859.
Order from OTS $0.50 61-31614

Trans. of Leningrad U. Uchenye Zapiski (USSR) 1956, no. 210, p. 47-54.

DESCRIPTORS: *Black Sea, *Albedo (Astronomy) Measurement, *Solar energy, Sea water, Reflection, Geophysics, Water.

In June-July 1954 the Main Geophysical Observatory in cooperation with the Leningrad University made extensive measurements on the Black Sea (Karadag) of the albedo of the sea at various heights of the sun, of the radiation flux emanating from the water, of the direct solar and scattered radiation and also measurements of the angular distribution of intensive scattered radiation over the celestial dome. The albedo measurement was made from a boat by means of Yanishevskiy's radial pyranometer with the use of a 3-meter rod. The radiation emanating from the water was measured by means of a special albedometer. The measurements of the angular distribution of the intensity of scattered radiation were carried out by means of a radial pyranometer attached to the theodolite and provided with a tube with an angle of vision equal to 10°. Measurements were made every 30° according to the azimuth and every 30° according to the zenith angle.

Kulikovskii, A. G. and Lyubimov, G. A.
QUELQUES PROBLÈMES SIMPLES RELATIFS À UNE ONDE DE CHOC IONISANT UN GAZ DANS UN CHAMP ELECTROMAGNETIQUE (Prosteishie Zadachi Soderzhashchie Ioniziruyushchuyu Gaz Udarnuyu Volnu v Elektromagnitnom Pole) [The Simplest Problems Concerning a Gas-ionizing Shock Wave in an Electromagnetic Field] tr. by Schirmann. 6 June 61 [12]p. (Russian text included) 3 refs. CEA Trans. no. R 1376 (text in French).
Order from OTS or SLA $1.60 61-28675

Trans. in French of Akad[emiya] Nauk SSSR. Dokl[ady] 1959, v. 129, no. 3, p. 525-528

DESCRIPTORS: *Shock waves, Gas ionization, *Electromagnetic fields.

Porod, G.
APPLICATION AND RESULTS OF SMALL-ANGLE X-RAY SCATTERING IN SOLID HIGH POLYMERS. [1961] [72]p. 142 refs.
Order from SLA $7.60 61-18371

Trans. of Fortschr[itte der] Hochpolym[eren]-Forsch[ung] (Germany) [1960] v. 2, p. 363-400.

DESCRIPTORS: *X-rays, *Scattering, *Polymers, Physical chemistry, Crystals, Density, Diffusion, Theory, Test methods, Tests, Cellulose, Ethylenes, Lattices, Electrochemistry, Radio, Chemistry, Solids.

Yanus, R. I., Rodigin, N. M., eds.
MAGNETIC METHODS OF FLAW DETECTION (NON-DESTRUCTIVE TESTING) ANALYSIS AND MEASUREMENTS: COLLECTION OF SCIENTIFIC AND TECHNICAL REPORTS OF THE CONFERENCE HELD IN SVERDLOVSK IN OCT 56 (Magnitnye Metody Defektoskopii, Analiza i Izmerenii: Sbornik Dokladov Nauchno-Tekhnicheskogo Soveshchaniya Brokhodivskego v g. Sverdlovske v Okt 56). [1961] 404p. 274 refs.
Order from OTS $5.00 AEC-tr-4512

Trans. of Akademiya Nauk SSSR. Institut Fiziki Metallov [Sverdlovsk]. Trudy, 1959, no. 21 [358p.].

DESCRIPTORS: *Non-destructive testing, *Magnetic detectors, Conferences, Reports, Scientific reports, Industrial research, Metals, Ceramic materials, Turbines, Airplanes, Materials, Structures, Mathematical analysis, Engineering personnel, Physics, Management engineering, Industrial equipment, Metallurgy, Iron, Microwave probes.

Contents:
Sensitivity of the magnetic powder method and its standardization, by A. V. Zhigadlo
Apparatus for testing parts by the magnetic powder method, by P. G. Mikhnevich
Magnetic semiautomatic flaw detector, by P. P. Khramov
Magnetic powder flaw detection of turbine parts, by B. Ya. Litvinenko
Trial application of the magnetic method of flaw detection in the GVA airplane repair network, by A. S. Borovikov and S. M. Popov
Trial of magnetic testing of the quality of parts in aviation technology repair, by S. P. Luts'ko
Electrospark method of obtaining the magnetic suspension, by V. L. Shmarts and G. S. Zaidlin
Method of calculation of alternating current solenoids with iron introduced for magnetic flaw detection, by P. G. Mikhnevich
On the demagnetization of bearing rings, by I. I. Kifer
On the limits of fluctuations of the residual magnetization induced by alternating current on the surface of a steel object, by A. V. Nifontov
On the passage of parts with disruptions of continuity to exploitation, by M. Ya. Balazovskii
Residual induction in large steel rings after circular magnetization by alternating current, by D. A. Shturkin, and others
Apparatus for the magnetization of objects by alternating current, by N. M. Rodigin
Test of the use of ferro-probes for the searching system of a magnetic rail flaw detector, by I. M. Lysenko and M. A. Matveev
On the applicability of differential ferro-probes with transverse excitation in flaw detection, by D. A. Shturkin
On the possibility of using the hall effect in semiconducting pickups for magnetic flaw detection, by M. L. Goldovskii and V. G. Glotov
Electromagnetic MT-DAZ thickness gage, by V. L. Shmarts
Magnetic thickness gage with a universal scale, by I. P. Vyazovoi
A very simple electromagnetic thickness gage, by R. I. Yanus and T. M. Senkevich
On the construction of a thickness gage with an inductive pickup, also usable as a coreless flaw detector, by M. L. Goldovskii and B. A. Skorokhod

Apparatus for measuring the thickness of the cementation layer, by I. P. Vyazovoi

On the optimum dimensions of the electromagnet attachment of the coercive force meter for testing the quality of thermal and chemico-thermal processing of steel and cast iron objects, by M. N. Mikheev

Magnetic testing of the depth of the active hardened layer of cold rolling rollers, by M. N. Mikheev and others

Magnetic testing of the depth of the active hardened layer of cold rolling rollers hardened by industrial frequency currents, by M. N. Mikheev and others

Magnetic testing of the tempering and annealing of parts of ball and roller bearings, by M. N. Mikheev and others

Magnetic testing of the depth and hardness of the cement layer of flow moldboards, by M. N. Mikheev and others

Magnetic testing of the depth of the hardened layer and the hardness of steel parts, hardened by high frequency currents, by M. N. Mikheev and others

On certain applications of the coercive force meter for testing of parts and materials, by B. Ya. Litvinenko

A trial factory application of the magnetic method of testing the quality of thermal processing of tractor parts, by F. N. Solodkina

Automation of testing of the hardness of parts by the method of magnetic permeability, by V. P. Rudometkin

Magnetic and electrical properties of chromium steels as a function of the structure and mechanical properties, by I. A. Kuznetsov and M. N. Mikheev

Testing of objects by the method of eddy currents, by N. M. Rodigin and I. E. Korobeinikova

New magnetic apparatuses and devises for the phase analysis of austenite steels, by S. Ya. Sigolaev and S. D. Entin

Some problems of the application of thermomagnetic analysis to the investigation of the phase composition of austenite steels, by S. D. Entin and S. Ya. Sigolaev

On the influence of the structure of alloys on the form of the magnetization curve in the region of high magnetic fields, by V. V. Parfenov

Magnetic measurements in bore holes, by V. N. Ponomarev

Small dimension magnetometer for the measurement of very weak magnetic fields, by S. Sh. Dolginov and L. N. Zhuzgov

On the use of magnetomodulated pickups of the second harmonic type as gradientometers, by Yu. I. Spektor

On the operation of magnetomodulated pickups under a load, by Yu. I. Spektor

On the theory of differential ferroprobes with longitudinal excitation, by R. I. Yanus and others

On the use of semiconducting rectifiers in phase sensitive indicator circuits of ferroprobe magnetometers, by L. A. Fridman

On the theory of unsaturated ferroprobes with longitudinal excitation, by N. N. Zatsepin.

Electronics

NEWS OF HIGHER EDUCATIONAL INSTITUTIONS, MINISTRY OF HIGHER EDUCATION, RADIOPHYSICS SERIES, 1961, VOL. 4, NO. 1. 5 Oct 61 [417]p. 289 refs. JPRS: 10349.
Order from OTS or SLA $22.25 61-28772

Trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Radiofizika (USSR) 1961, v. 4, no. 1, p. 1-198.

DESCRIPTORS: *Electronics, Periodicals, USSR, Atmosphere, Gas ionization, Moon, Surface properties, Ionisphere, Radio transmission, Radio waves, Absorption, Refraction, Sound, Scattering, Ferroelectric materials, Polarization, Oscillators, Amplitude modulation, Frequency modulation, Microwave amplifiers, Delay lines, Relays, Control systems, Electrocardiography, Data storage systems, Magnetic cores, Microwave equipment, Generators.

Contents:

Introduction

The motion of ionized gas in the upper atmosphere, by D. V. Dokuchaev

Determination of the moon's surface from observation obtained with radio telescopes of high resolution, by N. L. Kaidanovskii and A. E. Salomonovich

Absorption of cosmic radio transmission in the ionosphere, by E. A. Benediktov and N. A. Mityakov

The possible role of sound scattering on the stratified inhomogeneities of the sea in producing a field in the geometrical shadow zone, by G. I. Priimak

The theory of combination of scattering of waves on a rough surface, by F. G. Bass

Use of the concept of negative equivalent radius of the earth for estimating the strong refraction of radiowaves, by S. Ya. Braude and others

The energy conservation law and the expression for the energy density in the electrodynamics of an absorbing and dispersive medium, by V. I. Ginzburg

The continuous spectrum of current in the periodic reversal of ferroelectric polarization, by I. A. Andronova

The correlation of amplitude and frequency fluctuations of oscillators, by A. N. Malakhov and V. N. Nikonov

Contribution to the study of the superregenerative regime of one-circuit parametric amplifiers, by E. M. Gershenzon and others

The expansion of the transmission band of parametric amplifiers with the help of coupled circuits, by E. M. Gershenzon and others

Two-row ladder delay system, by Yu. G. Al'tshuler and others

On a relay control system for an unstable object, by S. D. Kinyapin

On the dependence upon parameters of the dynamics of a relay control system with an unstable element, by S. D. Kinyapin

An apparatus for registering and diagnosing disorders of the rhythmic function of the heart, by M. L. Zetlin and others

Broaching the crosslar matrix of a memory system in magnetic cores, working on the principle of a multiple coincidence of currents, by Yu. L. Ketkov

Method of investigating scattering of radio waves in the troposphere at wide angles, by V. A. Zimichev and others

A field molecular generator with getter-ion pump and cooling, by A. F. Krupnov and others

Properties of a two-circuit parametric generator, by S. A. Akhmanov and others

Noise factor of a two-circuit system in the case of parametric action on one of the circuits, by Yu. E. D'yakov

Apparatus for recording and reproduction of continuously changing voltages, by N. S. Anishev

All-union Conference on Radio Electronics of the Ministry of Higher and Secondary Special, Education (no. 4).

NEWS OF HIGHER EDUCATIONAL INSTITUTIONS, MINISTRY OF HIGHER EDUCATION, RADIOPHYSICS SERIES, 1961, VOL. 4, NO. 2. 30 Sep 61 [295]p. JPRS: 10223.
Order from OTS or SLA $18.50 61-28612

Trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Radiofizika (USSR) 1961, v. 4, no. 2, p. 203-381.

DESCRIPTORS: *Electronics, Periodicals, USSR, Microwave equipment, Generators, Oscillations, Stability, Solar flares, Radio waves, Particles, Terrestrial magnetism, Cerenkov radiation, Microwave spectroscopy, Measure theory, Statistical processes, Electrical networks, Voltage, Distribution, Communication systems, Multipath transmission, Transmission lines, Electromagnetic waves, Propagation, Numerical analysis, Electron accelerators, Energy, Frequency, Superhigh frequency, Traveling wave tubes, Semiconductors, Circuits, Triodes, Temperature control, Control systems, Damping, Instrumentation, Cold cathode tubes, Thyratrons, Phase modulation, Amplitude modulation, Special functions

Contents:
Subharmonic parametric generators as elements of superhigh speed digital computers, by S. A. Akhmanov and A. S. Roshal
Sporadic solar radio emission on low frequencies, by E. A. Benediktov and G. G. Getmantsev
On the incoherent radio emission of the charged particles moving in the earth's magnetic field, by E. A. Benediktov and V. Ya. Eidman
On the stability of oscillations in a molecular generator, by A. F. Mukhametgalieva and R. V. Khorkhlov
On the sensitivity of a radiospectroscopy device utilizing a meter wave generator, by O. G. Elsting
Generalization of the ergodic theorem to nonstationary random processes, by L. I. Gudzenko
The influence of palm's pulse sequence on radio circuits with capacity storage circuits, by G. A. Medvyedev
On the speed of transmission of information on channels with multipath propagation, by V. A. Zverev and E. F. Orlov
On the geometrical optics approximation for waves in transmission lines with variable parameters, by L. A. Ostrovskii
On the influence of a frequency change on the output energy in a linear electron accelerator, by A. V. Shalnov and N. M. Gavrilov
Frequency division on super-high frequencies with the help of traveling wave tubes, by S. A. Akhmanov and A. S. Gorshkov
To the calculation of autooscillating circuits with semiconductor triodes, by N. I. Ashbel and L. V. Postnikov
Autooscillations of a two-position temperature control system with a thermal proportional-plus-floating device, by A. S. Alekseev and V. A. Dozorov
Contribution to the theory of nonlinear damper with preliminary tightening up in the elastic connection, by M. I. Feigin
The influence of the main nonlinearities on the work of a standard indirect control system, by Y. A. Gopp
Logical circuits for cold cathode thyratrons, by A. S. Kotosonov
Concerning the limits of applicability of the method of smooth perturbations in the problem of propagation of radiation through a medium with inhomogeneities, by V. V. Pisareva
Fluctuations of phase and amplitude in superlong distance propagation of electromagnetic waves over the earth's surface, by F. G. Bass and E. A. Kaner
Certain general properties of the Lyapunov function, by Yu. I. Neimark

Beketov, V. I.
ON TAKING ACCOUNT OF THE TOPOLOGICAL CHARACTERISTICS OF THE GRATING FACTOR IN DESIGNING FOUR-ELEMENT COPHASAL ANTENNAS WITH REDUCED SIDE EMISSION LEVEL. [1961] 11p. 8 refs. MDF B-188; AFCRL-587; AD-262 523.
Order from OTS or SLA $1.60 62-13629

Trans. of #Radiotekhnika (USSR) 1961, v. 16, no. 3, p. 13-21.

DESCRIPTORS: *Broadband antennas, Design, *Antenna radiation patterns, Diffraction gratings, Antennas.

The method of taking account of the topological characteristics of the grating factor, which permits a solution of the question of the reduction of the side radiation level as well as of the increase in the gain coefficient of cophasal antennas, is considered in application to four-element cophasal antennas.

Kaushanskii, N. I.
ON AN ANALOG OF THE DUHAMEL INTEGRAL FOR SIGNALS WITH BOUNDED SPECTRUM. [1961] 9p. 4 refs. MDF K-256; AFCRL-589; AD-262 525.
Order from OTS or SLA $1.10 62-13631

Trans. of Izv[estiya] V[ysshikh] U[chebnykh] Z[avedenii]. Radiotekh[nika] (USSR) 1961, v. 4, no. 2, p. 192-197.

DESCRIPTORS: Linear systems, *Signals, Numerical analysis, *Integrals, Series.

Rozenberg, L. D. and Eknadiosyants, O. K.
KINETICS OF ULTRASONIC FOG FORMATION. [1961] [7]p. 5 refs. [DSIR LLU]M. 3255.
Order from OTS or SLA $1.10 61-27615

Trans. of #Akusticheskii Zhurnal (USSR) 1960, v. 6, no. 3, p. 370-373.

DESCRIPTORS: *Fog, Production, *Ultrasonics, Liquids, Atomization, Surface tension.

Observations of fog formation in a small ultrasonic fountain showed that the fog is thrown off by separate portions (explosions) of a duration of 400 μsec.; the intervals between explosions are of considerable duration. The ejections may be narrow, directional or wide. The process of fog formation is always preceded by a lightening of the drops ("beads") of the fountain which are deformed after ejection.

Molecular Physics and Spectroscopy

Cristescu, G. D.
LIGHT SOURCE FOR SPECTRAL ANALYSIS AND DEVICE FOR ITS PRODUCTION. [1961] 5p.
Order from ATS $8.50 ATS-27N57F

Trans. of French patent 1,247,168, filed 3 Feb 60, granted 17 Oct 60.

DESCRIPTORS: *Light transmission, Spectrographic analysis, Light, Sources.

Sidorov, T. A. and Sobolev, N. N.
INFRARED AND COMBINATION SPECTRA OF BORIC ANHYDRIDE. III. INTERPRETATION OF VIBRATION SPECTRUM OF BORIC ANHYDRIDE AND CALCULATION OF ISOTOPIC EFFECT (Infrakasnyi i Kombinatsionnyi Spektry Bornogo Angidrida. III. Interpretatsiya Kolebatel'nogo Spektra Bornogo Angidrida i Raschet Izotopicheskogo Effekta). [1961] [22]p. foreign text included) 13 refs.
Order from OTS or SLA $2.60 61-20836

Trans. of Optika i Spektroskopiya (USSR) 1958, v. 4, no. 1, p. 9-16.
Other translations are available from OTS or SLA $1.60 as 61-19735 [1961] [13]p. and LC or SLA mi$2.40, ph$3.30 as 60-17905, CTS-591, Dec 58 [17]p

DESCRIPTORS: *Anhydrides, *Boric acids, *Infrared spectroscopy, Molecular structure, Valence, Polarization, *Molecular spectroscopy, Molecular association, Chemical bands, Isotopes, Radioactive isotopes, Liquids, Solids.

For abstract see Technical Translations 4: 241, 1960.

Stepanov, B. I.
EFFECT OF THERMAL IRRADIATION BACKGROUND ON SPECTROSCOPIC PROCESSES (Vliyanie Fona Teplovogo Izlucheniya na Spektroskopicheskie Protsessy). [1961] 12p. (foreign text included) 10 refs
Order from OTS or SLA $1.60 AEC-tr-4519

Trans. of Optika i Spektroskopiya (USSR) 1957, v. 3, no. 1, p. 3-8.

Portions of this report will not reproduce well.

DESCRIPTORS: *Infrared spectroscopy, Light, Sources, Luminescence, *Thermal radiation.

Vincent-Geisse, J. and Lecomte, J.
MEASUREMENT OF REFRACTIVE INDICES IN THE INFRARED. [1961] 22p. 88 refs.
Order from SLA $2.60 61-20825

Trans. of Journal de Physique et le Radium (France) 1960, v. 21, no. 11, p. 794-800.

DESCRIPTORS: Infrared research, *Infrared spectroscopy, Refractometers, *Refractive index, Measurement.

There have been numerous measurements of indices of refraction in the infrared in recent years. After pointing out the importance of them in various fields, we describe the methods employed, stressing the most recent ones, and we append a bibliography of recent publications dealing with this problem. (Author)

Solid State Physics

Belinkii, A. L. and Shtannikov, V. I.
MICROFILMING OF THE MARTENSITIC TRANSFORMATION. [1961] 7p. 9 refs.
Order from OTS or SLA $1.10 UCRL Trans-662 (L)

Trans. of Zavodskaya Laboratoriya (USSR) 1955, v. 21 [no. 1] p. 62-66.

DESCRIPTORS: *Martensite, *Crystals, Growth, Transformations, *Microfilm, Photographic recording systems, Photographic analysis, Heat of formation.

Kotyukov, Yu. N. and Smokotin, E. M.
MEASUREMENT OF THE FERROMAGNETIC RESONANCE ABSORPTION LINE WIDTH IN POLYCRYSTALLINE FERRITES (Izmerenie Shiriny Linii Ferromagnitnogo Rezonansnogo Pogloshcheniya v Polikristallicheskikh Ferritakh) tr. by L. M. Matarrese. July 61 [14]p. (foreign text included) 7 refs.
Order from OTS or SLA $1.60 61-28689

Trans. of Izvestiya Vysshikh Uchebnykh Zavedenii. Fizika, 1960, no. 4, p. 173-177.

DESCRIPTORS: *Ferrites, Crystal structure, *Resonance absorption, Ferromagnetism, Magnesium compounds, Chromium compounds, Magnetism

An experimental study of the influence of the dimensions and shape of ferrite samples on the width of the ferromagnetic resonance curve was carried out. It is shown that in the case of using spherical samples, for the correct experimental determination of the magnitude of ΔH, it is necessary to take the dependence of the line width of ferromagnetic resonance on the sphere diameter and extrapolate this function to zero diameter. A correlation is established between the change in ΔH of polycrystalline ferrites as a function of shape of sample and theoretical data. (Author)

Nasledov, D. N., Smirnova, N. N., and Tsarenkov, B. V.
POINT-CONTACT GALLIUM ARSENIDE DIODES (Techechno-Kontaktnye Diody na Osnove Arsenida Galliya). [1961] [7]p. (foreign text included) 5 refs.
Order from OTS or SLA $1.10 61-18319

Trans. of mono. Fizika Tverdogo Tela: Sbornik [Statei. Solid State Physics: Collection of Articles] Moscow, 1959, v. 2, p. 96-98.

DESCRIPTORS: *Diodes, *Gallium compounds, Arsenides, Gallium alloys, Electron tubes, Metal plates, Electrical conductance, Electric connectors, Voltage.

The method of preparing point-contact diodes of n-type GaAs is described briefly. The volt-ampere characteristics of the diode for different temperatures are given. It is shown the diode properties are retained in the temperature interval from room temperature to 300°C. (Author)

Semenchenko, V. K.
SURFACE PHENOMENA IN METALS AND ALLOYS.
Sep 61, approx. 490p.
Order from PP $17.50

Trans. of unidentified Russian mono., n.p., n.d.

DESCRIPTORS: *Metals, *Alloys, *Surface tension, Adsorption, Theory, Boron, Steel, Solids, Mixtures, Thermodynamics, Solutions, Molecular structure.

Skubenko, A. F.
ELECTRIC AND PHOTOELECTRIC PROPERTIES OF SINGLE CRYSTALS OF SELENIDE AND SULFIDE OF ANTIMONY. I. METHOD OF GROWING SINGLE CRYSTALS OF Sb_2Se_3 AND Sb_2S_3 (Elektrychni i Fotoelektrychni Vlastyvosti Monokrystaliv Selenidu i Sul'fidu Surmy. I. Metodyka Vyroshchuvannya Monokrystaliv Sb_2Se_3 i Sb_2S_3). 17 May 61 [17]p. 13 refs.
JPRS: 9288.
Order from OTS or SLA $1.60 61-23048

Trans. from Ukrayins'kyy Fizychnyy Zhurnal (USSR) 1960, v. 5, no. 6.

DESCRIPTORS: *Single crystals, *Selenides, Electrical properties, *Antimony compounds, *Sulfides, Growth, Photoelectric materials, *Zone melting, Chemical analysis, Purification, Quality control, Castings, Photosensitivity, Tellurium, Thin films, Semiconductors, Synthesis.

Equipment was designed and tested for zonal melting, growing of crystals and homogenization of compounds (Sb_2Se_3, Sb_2S_3, Sb_2Te_3 and others) and three-component systems of elements of the V and VI group of Mendeleyev's table. An engineering method was designed and tested for preparing compounds and mixtures of these elements in quartz ampoules. Conditions of synthesis of compounds were investigated. In the case of Sb_2S_3 synthesis is successfully achieved (almost without blisters) by heating to 850 or 900°C over a period of 10 to 12 hours with subsequent slow cooling. The synthesis of Sb_2Se_3 proceeds more actively and requires heating to 900 to 950°C over a period of 6 to 8 hours. Conditions of purification of material were investigated. Attention was drawn to mechanical changes in the purification of compounds. There is a displacement of substance in Sb_2Se_3 and Sb_2S_3 in mutually opposite directions. Sb_2Se_3 increases its volume during melting, and Sb_2S_3 decreases it. For qualitative control of purification a method is proposed of picking off the distribution of the potential along the ingot (of uniform cross-section). (Author)

Theoretical Physics

PROBLEMS OF MAGNETOHYDRODYNAMICS AND PLASMA DYNAMICS: PROCEEDINGS OF THE CONFERENCE ON MAGNETOHYDRODYNAMICS, RIGA, 2-10 JULY 58. Sep 61, 289p. 150 refs.
Order from OTS $3.50 AEC-tr-4509

Trans. of mono. Voprosy Magnitnoi Gidrofinamiki i Dinamiki Plazmy (Trudy Konderentsii po Magnitnoi Gidrodinamiki, Riga, 2-10 July 58) Riga, 1959.

DESCRIPTORS: Conferences, *Magnetohydrodynamics, *Plasma physics, Astrophysics, Cosmic rays, Magnetic fields, Liquids, Particles, Acceleration, Shock waves, Stability, Electrons, Temperature, Zenon, Argon, Magnetic pinch, Gases, Motion, Gas cylinders, Oscillations, Electric discharges, Liquid metals, Metals, Electromagnetism, Turbulent flow, Processing, Electromagnetic pumps, Pumps, Design, Electric fields, Electric arcs.

Contents:

Role of magnetohydrodynamics and plasma dynamics in certain problems of astrophysics, by D. A. Frank-Kamenetskii
Magnetohydrodynamics and the investigation of the variations of cosmic rays, by L. I. Dorman
Spectrum of cosmic rays and their role in cosmic gas dynamics, by S. I. Syrovatskii
Influence of a magnetic field on the stability of flow of a conducting liquid, by E. P. Velikhov
Certain problems in the motion of a rarefied plasma in a magnetic field, by Ya. P. Terletskii
Nonlinear steady motion of rarefied plasma in a magnetic field, by R. Z. Sagdeev
One criterion of applicability of the equations of magnetohydrodynamics to a plasma, by S. I. Braginskii
Discussion following the paper, by R. V. Polovin
Regarding acceleration of plasma in a magnetic field, by L. V. Gordeev and A. I. Gubanov
Discussion following the paper, by G. V. Gordeev
On the possibility of accelerating charged particles by means of shock waves in a magnetized plasma, by L. I. Dorman and G. I. Friedman
On the acceleration of charged particles during powerful pulsed discharges and collisions of magnetized clouds, by L. I. Dorman
Influence of longitudinal magnetic fields on the temperature of electrons in a plasma, by M. V. Konyukov
Investigation of certain characteristics of zenon and argon plasma behing a powerful shock wave, by S. R. Kholev
Observations of an electromagnetically pinched arc with the aid of an electron-optical converter, by B. L. Granovskii and others
Stability of shock waves in magnetohydrodynamics, by A. I. Akhiezer and others
Interaction between small perturbations and discontinuities, and stability of shock waves in magnetohydrodynamics, by V. M. Kontorovich
On the stability of shock waves in magnetohydrodynamics, by S. I. Syrovatskii
Impossibility of rarefaction shock waves in magnetohydrodynamics, by R. V. Polovin and G. Ya. Lyubarskii
Zemplen's theorems in magnetohydrodynamics, by S. V. Iordanskii

Oblique shock wave in a plasma with finite conductivity and several other problems in the theory of shock waves, by M. I. Kiselev and V. I. Tseplyaev
On thermodynamic equilibrium of the surfaces of a strong discontinuity, by V. I. Skobel'kin
Regarding the excitation of hydromagnetic waves by A. I. Akhiezer and A. G. Sitenko
Cherenkov generation of magnetoacoustic waves, by A. I. Morozov
On the scattering of hydromagnetic waves by turbulent fluctuations, by A. G. Sitenko and Yu. A. Kirochkin
On the damping of magnetohydrodynamic waves in a plasma, by R. Z. Sagdeev
Simple waves in magnetohydrodynamics, by A. I. Akhiezer and others
Simple magnetoacoustic waves, by G. Ya. Lyubarskii and R. V. Polovin
Riemann waves in magnetohydrodynamics, by A. G. Kulikovskii
Plane problems of magnetohydrodynamics, by G. S. Golitsyn
On flows produced by waves in magnetohydrodynamics, by A. I. Ivanovskii
Unsteady self-similar motions of gas in a magnetic field, by V. N. Korobeinikov
Oscillations of an infinite gas cylinder with intrinsic gravitation in a magnetic field, by I. M. Yavorskaya
Magnetic boundary layers and discharges of electric current in moving media, by V. N. Zhigulev
Investigation of the systems of equations of a conducting liquid in the two-parameter stationary case, by V. S. Tkalich
Similarity methods and physical modeling in the investigation of electromagnetic processes in liquid metals, by I. M. Kirko
Discussion following the paper, by D. A. Frank-Kamenetskii
Model of an infinitely long channel with liquid metal contained in a running magnetic field, by I. M. Kirko and others
Discussion after the paper, by I. M. Kirko
Principle of modeling of the electric field of electromagnetic pumps in an electrolytic trough and on electrically-conducting paper, by L. V. Nitsetskii
Discussion following the paper, by A. I. Vol'dek
Motion of a sphere in a viscous conducting liquid located in a longitudinal magnetic field, by A. K. Gailitis
Rotation of a conducting sphere in a conducting viscous liquid in the presence of a magnetic field, by Yu. K. Krumin'
Stability of convective motion of an electrically-conducting liquid between parallel planes in a magnetic field, by G. Z. Gershuni and E. M. Zhukhovitskii
Theory of certain magnetodynamic phenomena of free thermal laminar convection of an electrically-conducting liquid in a vertical round tube in a weak magnetic field, by A. G. Smirnov
Experimental investigation of magnetohydrodynamic phenomena in the damping of oscillating motion of mercury in a tube, by A. G. Smirnov and N. S. Kozhanova
Discussion following the paper, by A. E. Mikel'son
Discussion following the paper, by O. A. Lielausis
Behavior of colloidal ferromagnetic particles in an inhomogeneous magnetic field, by N. I. Eremin
Investigation of magnetic fields and electromagnetic processes in linear induction pumps, by A. I. Vol'dek
Choice of main parameters of induction pumps designed for maximum efficiency, by E. K. Yankop
Discussion following the paper by Yu. K. Krumin'
Optimum use of construction of induction pumps, by L. G. Savvin
Experience in developing electromagnetic pumps at the Institute of Physics of the Academy of Sciences of the Latvian SSR, by P. G. Kirillov and others
Discussions following the paper, by N. M. Turchin
Application of induction pumps in the casting and metallurgy industry, by L. A. Verte
Concerning certain problems in the design of linear induction pumps, by A. I. Vol'dek
Discussion following the paper, by L. A. Verte
The problem of the "electromagnetic crucible" by R. P. Zhezherin
A turbulent flow of liquid metal under the influence of a traveling magnetic field, by I. M. Kirko and O. A. Lielausis
On the mixing of molten metals by a traveling magnetic field, by G. A. Ostroumov
Use of stray-field pumps for mixing of liquid metals, by A. E. Mikel'son
Construction of a yoke stator for induction mixing of metals in arc furnaces, by M. G. Rezin
Power supplies for apparatus for electromagnetic mixing of metals in electric arc furnaces, by Ya. I. Drobinin
Yoke mixers for liquid metals, by P. A. Fridkin
On the choice of optimum stator frequency when mixing liquid steel with the aid of a traveling electromagnetic field, by N. I. Bortnichuk and M. M. Krutyanskii.

RELATIVITY: BIBLIOGRAPHY. [1961] 8p. 158 refs. MDF BIB-2.
Order from OTS or SLA $1.10 62-13693

DESCRIPTORS: *Relativity theory, *Quantum mechanics, *Gravity, *Electromagnetic theory, Bibliography, USSR.

The titles in this bibliography drawn from material by Soviet investigators were published in the years 1946-61.

Pöschl, Th.
AN ELEMENTARY THEORY ON FATIGUE STRENGTH, tr. by M. Flint. [1961] [9]p. 3 refs.
Order from SLA $1.10 61-18756

Trans. of Ingenieur-Archiv (Germany) 1941, v. 12, no. 2, p. 71-76.

DESCRIPTORS: *Fatigue (Mechanics), Theory materials, Stresses, Mathematical analysis.

Thermodynamics

Buchner, Michel and Loy, Fernand.
DEVICE FOR DETECTING ABNORMAL HEATING OF AXLE BOXES OF ROLLING STOCK, tr. by J. B. 25 Aug 61, 10p. (2 figs. omitted).
Order from OTS or SLA $1.10 61-28082

Trans. of French patent 1,232,431, internat'l. cl. B 61 k, by Télécommunications Radioeléctriques et Télephoniques (T.R.T.), appl. 21 Apr 59, granted 25 Apr 60, pub. 7 Oct 60.

DESCRIPTORS: *Bushings, Heating, Detection, *Infrared detectors, Design, Temperature sensitive elements.

The device for detecting abnormal heating of axle boxes of moving railway rolling stock has in combination a detecting element sensitive to infrared radiation, an optical system provided with filtering means for concentrating on said element a portion of the infrared radiation emitted by the axle boxes passing successively in the vicinity of the device, and means for utilizing the information collected at the output of said detecting element. The device is characterized principally in that the optical system is opaque to radiations having a wavelength less than 3 μ at least, and transparent to a spectral band having an upper limit of at least 13 μ, whereas said detecting element is constituted by a thermodynamic pneumatic cell sensitive only to relatively abrupt variations (bandwidth limited to 6 db comprised between a fraction of a second and 1/1000 of a second) of the flux of energy concentrated by said optical system on said detecting element.

Eickler, Wolfgang.
NEW INSTRUMENTS FOR THE INVESTIGATION OF GASES AND DETERMINATION OF THEIR CALORIFIC VALUE, AND FOR THE CONTROL OF FURNACE INSTALLATIONS. [1959] [8]p. 5 refs.
Order from SLA $1.10 61-20672

Trans. of Gas Wärme (West Germany) 1957, Nov, p. 348-351.
Another trans. is available from BISI £2 15s as BISI-1216 [1959]

DESCRIPTORS: *Gases, *Thermodynamics, Instrumentation, Determination, Calorimeters, Control systems, *Combustion chambers, Furnaces.

Office of Technical Services, Dept. of Commerce, Washington, D. C.
HEAT TRANSFER AND HEAT EXCHANGERS. Feb 61, 33p. 591 refs. OTS Selective Bibliography SB-450.
Order from OTS $0.10 OTS SB-450

DESCRIPTORS: *Heat transfer, *Heat exchangers, *Bibliography, Thermodynamics.

Lists 591 PB reports, AEC reports and translations added to the OTS collection during 1950 to January 1961. Reports cover heat transfer theory, mathematical analysis, measurements, and measuring equipment; heat transfer effects in metals, ceramics, gases, liquids, blunt bodies; liquid metals as heat transfer media. Separately listed are reports on heat exchangers.

Wave Propagation

Bobrovnikov, M. S. and Starovoitova, R. P.
CONCENTRATED EXCITATION OF A METAL CYLINDER WITH A DIELECTRIC COATING. [1961] 11p. 9 refs. MDF B-189; AFCRL-588; AD-262 524.
Order from OTS or SLA $1.60 62-13630

Trans. of Izvestiya V[ysshikh] U[chebnykh] Z[avedenii]. Radiotekhnika (USSR) 1961, v. 4, no. 2, p. 140-147.

DESCRIPTORS: Dielectrics, Coatings, Excitation, *Dielectric films, Metals, *Cylindrical bodies, *Electron wave tubes, Mathematical analysis, *Electromagnetic waves.

The problem is analyzed of the symmetric concentrated excitation of an infinitely long metal cylinder covered with a dielectric layer by a ring of magnetic flux. It is shown that a plane surface wave propagated along the cylinder and a spherical radiation wave are here excited. The efficiency of the excitation of the surface wave is determined (the ratio between the surface and space wave energies). The radiation resistance of the emitting system is found. (Author)

Borodina, S.V.
ANALYSIS OF THE SHAPE OF ATMOSPHERICS. [1961] 25p. 7 refs. MDF B-187; AFCRL-571; AD-262 422.
Order from OTS or SLA $2.60 62-13628

Trans. of [Nauchno-Issledovatel'skii Institut Zemnogo Magnetizma, Ionosfery i Rasprostraneniya Radiovoln]. Trudy (USSR) 1960, v. 17(27) p. 3-26.

DESCRIPTORS: *Atmospherics, Analysis, *Electromagnetic waves, Propagation, Harmonic analysis, Ionosphere, Spectrographic analysis.

It is shown how the propagation velocity of audio frequency electromagnetic waves and the effective conductivity of the lower part of the ionosphere at these frequencies can be determined on the basis of studying the phase characteristics of atmospherics by using a method proposed by Ya. L. Al'pert (Uspekhi Fiz. Nauk 60: 370, 1956). Results of the analysis of atmospherics whose sources are 500 to 3300 km from the observation point are presented. The behavior of the function $B(\omega, r)$, which characterizes the properties of the medium and expresses the frequency dependence of the signal amplitude for various ranges, is obtained from these data and from data on the source of atmospherics. The experimental curves of the relative values of $B(\omega, r)$ and also other data on the amplitude of the field are compared with the theoretical results of Ya. L. Al'pert. The results of an analysis of the phase spectra of atmospherics and the results obtained on the phase velocities of electromagnetic waves in the 2- to 20-kc band are analyzed in detail. A comparison of the experimental curve of the frequency dependence of the phase velocity with the theoretical curve yields good agreement for $f \geqslant 3$ kc and noticeable divergence for $f < 3$ kc. The question of determining the effective parameters of the lower part of the ionosphere responsible for the propagation of very long electromagnetic waves is also considered. (See also 59-18394)

Fooktstova, E. A.
THE EXPERIMENTAL DETECTION OF THE MACH REFLECTION OF DETONATION WAVES IN A SOLID EXPLOSIVE MATERIAL. 11 Oct 61 [6]p. 1 ref. JPRS: 10500.
Order from OTS or SLA $1.10 61-28899

Trans. of Akademiya Nauk SSSR. Doklady, 1961, v. 136, no. 6, p. 1325-1327.

DESCRIPTORS: *Mach number, *Explosives, *Detonation waves, Propagation, Reflection, Velocity, Prismatic bodies, Prisms, Wave characteristics, Wave transmission, High-speed photography, Motion pictures, Aluminum.

Two plane detonation waves were simultaneously applied to the side facets of various sized trihedral prisms of solid explosive material. The prism angle 2α was thus the collision angle of the detonation wave. Photochronograms showed the irregular reflection of the detonation waves. The critical angle α_{cr} that separates the regular and Mach reflection was 49°. The third wave could not be observed with small prisms, regardless of the value of α, which showed that this wave originates in the depth of the prism and not at its top. In order to measure the propagation velocity D_T of the third Mach wave, another series of experiments was performed on parallelepipeds of explosive material. D_T values, expressed in units of the detonation of normal velocity, were 1.3019 for 2α = 49 to 53°, 1.2241 for 2α = 53 to 57°, 1.1722 for 2α = 57 to 62.5°, 1.1138 for 2α = 62.5 to 67.5° 1.0824 for 2α = 67.5 to 70°, and 1.052 for 2α = 70 to 75°. An additional experiment with a 100-mm high trihedral prism of aluminum showed that α_{cr} = 38° for aluminum.

Kalmykova, S. S., Tret'yakova, S. S., and Shestopalov, V. P.
THE PROPAGATION OF ELECTROMAGNETIC WAVES IN A MODIFIED CONTRA-WOUND HELICAL COIL PLACED IN A CYLINDRICAL WAVEGUIDE. 2 Aug 61 [14]p. 5 refs. JPRS: 4834.
Order from OTS or SLA $1.60 61-27950

Trans. of Akademiya Nauk SSSR. Otdelenie Tekhnicheskikh Nauk. Izvestiya: Energetika i Avtomatika [1961] no. 2, p. 159-164.

DESCRIPTORS: *Electromagnetic waves, Propagation, *Waveguides, Cylindrical bodies, *Helixes, *Circular coils, *Wire winding machines.

An analysis shows that a waveguide shield increases the decelerative properties of the slow-wave system, diminishes the dispersion, and increases the bandwidth characteristic of the system. The use of the helix with a shield diminishes the group velocity of the decelerated electromagnetic waves. The null harmonic impedance of the shielded helix increases as compared to the open helix. The ratio between the impedances of the null and higher harmonics is adversely affected by the approach of the shield and increases in the frequency.

Rubinshtein, Ya. M.
PROPAGATION OF RADIO WAVES AND ANTENNA FEEDER DEVICES, CHAPS. 13-14. 4 Aug 61 [99]p. (illus. omitted) MCL-959/1.
Order from OTS or SLA $8.60 61-28991

Unedited rough draft trans. of mono. Rasprostranenie Radiovoln i Antennofidernye Ustroistva, Leningrad, 1960, p. 317-379.

DESCRIPTORS: *Radio waves, Propagation, *Antennas, *Transmission lines, Electromagnetic waves, *Radio stations, Impedance, *Ship antennas.

Contents:
Propagation of ultrashort waves, antennae for ultrashort waves
Antenna testing.

Stratonovich, R. L.
APPLICATION OF THE THEORY OF MARKOV PROCESSES FOR THE OPTIMAL FILTRATION OF SIGNALS. [1961] 11p. 6 refs. [DSIR LLU] M 4059.
Order from OTS or SLA $1.60 61-28209

Trans. of #Radiotekhnika i Elektronika (USSR) 1960, v. 5, no. 11, p. 1751-1763.

DESCRIPTORS: *Signals, Separation, Statistical processes, Probability, Radio signals, Noise (Radio), Non-linear systems.

The apparatus of Markov conditional processes is used for the calculation and design of optimum non-linear systems. It effects the separation of a useful signal from noises. The general theory is illustrated by solving two concrete problems. In the first of them the optimum system, which is found, includes as a part, the optimum Woodward-Davis receiver. (Author)

RESEARCH METHODS, TECHNIQUES AND EQUIPMENT

KNOWLEDGE IS STRENGTH, 1960, NO. 9: [SELECTED ARTICLES]. 22 Sep 61, 41p. JPRS: 10198.
Order from OTS $1.25 61-31620

Trans. of Znanie-Sila (USSR) 1960 [v. 35] no. 9, p. 18-21 and 23-27.

DESCRIPTORS: *Science, *Cybernetics, Periodicals, USSR, Automatic, Telephone communication systems, Railroad cars, Control systems, Prosthetics, Bioelectronics.

Contents:
Without man: for man, by G. Malinichev
Living automatic regulators
Automatic motorman, by G. Malinichev
Machine is learning, by E. Saparina

NEWS OF THE SIBERIAN DEPARTMENT OF THE ACADEMY OF SCIENCES USSR, 1961, NO. 4 [SELECTED ARTICLES]. 9 Oct 61, 10p. JPRS: 10494.
Order from OTS $0.50 61-31653

Trans. of Akademiya Nauk SSSR. Sibirskoe Otdelenie. Izvestiya, 1961, no. 4, p. 116-122.

DESCRIPTORS: *Scientific organizations, Siberia, Economists, Chemists, Tests, Electricity, Transmission, Transmission lines, Conferences.

Contents:
General meeting of the Siberian department of the Academy of Sciences, USSR, by V. G. Fomin
Meeting of Siberian economists, by V. G. Fomin
Meeting of Siberian chemists, by K. E. Mironov
Conference on the transmission of electrical power, by E. S. Lukashov.

Ceccato, Silvio, ed.
LINGUISTIC ANALYSIS AND PROGRAMMING FOR MECHANICAL TRANSLATION. 1961, 246p.
Order from GB $7.50

Trans. of unidentified Italian mono. [Milan] n.d.

DESCRIPTORS: *Language, Coding, Programming, *Machine translation, Digital computers, Computers.

Vitushkin, A. G.
THEORY OF THE TRANSMISSION AND PROCESSING OF INFORMATION. Aug 61, 224p.
Order from PP $15.00

Trans. of unidentified Russian mono., n.p., n.d.

DESCRIPTORS: *Data processing systems, *Data transmission systems, Theory, Transmission, Processing, Data.

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RECORDS OF THE SUPREME SOVIET. 18 Sep 61 [57]p. MCL-1302.
Order from OTS or SLA $5.60 62-13304

Unedited rough draft trans. of Verkhovnyi Sovet. Vedomosti (USSR) 1960, v. 23, no. 41(1025) p.923-949.

DESCRIPTORS: *Construction, *Metallurgy, Labor, Industrial equipment, Design, Professional personnel, Economics, Technical intelligence, *Iraq, *East Germany, *Political science, *Communism, USSR.

Names of persons are listed who were awarded (1) the Order of Lenin, (2) the Order of the Red Banner of Labor, (3) the Order of the Badge of Honor, (4) the medal for Labor Valor, and (5) the medal for distinction in labor.

Agranovskii, Valerii.
SECRETS OF THE PATENT LIBRARY, tr. by J. B. 14 Sep 61, 14p.
Order from OTS or SLA $1.60 61-28370

Trans. from Ekonomicheskaya Gazeta (USSR) 1961, no. 3, p. 21-22.

DESCRIPTORS: *Patents, Inventions, *Libraries, Records, Reports, Classification, Economics, Documentation.

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PL-480 Glowny Instytut Gornictwa. Komunikat (Poland) 1958, no. 220; 1960, no. 242; Koks, Smola, Gaz (Poland) 1957 (v. 2) no. 1, p. 8-11; 1958, v. 3, no. 1, p. 11-19, no. 2, p. 47-50, no. 4, p. 143-151, no. 5, p. 184-189; 1960, v. 5, no. 2, p. 49-61; Przeglad Gorniczy (Poland) 1958 (v. 14) no. 9, p. 21-24.

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PL-480 Koks, Smola, Gaz (Poland) 1957, v. 2, no. 2, p. 77-81, no. 3, p. 108-114, no. 4, p. 129-132, no. 6, p. 303-309; 1959, v. 4, no. 5/6, p. 238-240.

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GENERAL METHOD FOR CONTROLLING COMBUSTION PROCESSES.
PL-480 Glowny Instytut Gornictwa. Komunikat (Poland) 1960, no. 261, 16p.

INSTRUCTIONS FOR BUILDING OBSTACLES. PART I, BARRICADING PROCEDURES.
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PL-480 Glowny Instytut Gornictwa. Komunikat (Poland) 1959, no. 241; 1960, no. 244.

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Aver'yanov, S. F., Yunevich, D. P., and Ignat'eva, V. M.
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PL-480 Gidrotekhnika i Melioratsiya (USSR) 1960 (v. 12) no. 10, p. 24-36.

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PHYSICS OF AN EXPLOSION.
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(Akademiya Nauk SSSR). Fizicheskii Institut. Trudy, 1961, v. 15, p. 178-229.

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PL-480 Vsesoyuznyi Nauchno-Issledovatel'skii Institut Morskogo Rybnogo Khozyaistva i Okeanografii. Trudy (USSR) 1958, v. 34, p. 178-184.

Ewald, Heinz and others.
METHODS AND APPLICATIONS OF MASS SPECTROSCOPY.
mono. Methoden un Anwendungen der Massenspektroskopie, pub. by Verlag-Chemie, G. n. b. H., 1952, 288p.

Flugge, S., ed.
ENCYCLOPEDIA OF PHYSICS. VOL. XXVIII, SPECTROSCOPY II.
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CONTACT-FREE FIL-WAVE THICKNESS FOR A HYDROGEN-COOLED GENERATOR.
German patent, 1,012,999 (1957).

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RESIN-GRAPHITE RESISTORS.
Japanese (published) patent 1485, 1959.

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INVESTIGATION OF TURBULENT AIR FLOW IN A DIVERGENT PIPE.
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German patent, 1,013,000, 1957.

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unidentified mono., Moscow, 1960, 218p.

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Zemskaya, K. A.
GROWTH AND SEXUAL MATURITY OF NORTHERN CASPIAN BREAM AS RELATED TO CHANGES IN ITS ABUNDANCE (Rost i Polovoe Sezrevanie Severokaspiiskogo Leshcha v Svyazi s Izmenennem Ego Chislennosti).
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